CCD-TR3E
RMT-709

SERVICE MANUAL

AEP Model
UK Model
E Model

SONY
SteadyShot
10x
video Hi8
Handycam
AUTO LOCK

video Hi8
Handycam

FL MECHANISM

- For details on AC POWER ADAPTOR (AC-V505) and HANDYCAM STATION (AC-HS1), refer to the other Service Manual.

For MECHANISM ADJUSTMENTS, refer to the "8 mm Video MECHANICAL ADJUSTMENT MANUAL Ⅱ " (9-972-705-11).

SPECIFICATIONS

Video Camera Recorder

System

Video recording system	Four Rotary heads, Helical scanning FM system
Audio recording system	Rotary head, FM system
Video signal	PAL colour, CCIR standards
Usable cassette	8 mm video format cassette (Hi8 or standard 8 mm)
Tape speed	SP mode: Approx. 20.051 mm (13/16 in)/second LP mode: Approx. 10.058 mm (13/32 in)/second
Recording time	SP mode: 1 hour and 30 minutes (E5/P5-90) LP mode: 3 hours (E5/P5-90)
Playback time	SP mode: 1 hour and 30 minutes (E5/P5-90) LP mode: 3 hours (E5/P5-90)
Fast-forward/rewind time	Approx. 8.5 min. (E5/P5-90)
Image device	CCD (Charge Coupled Device)
Viewfinder	Electronic viewfinder (colour)
Lens	Combined 10 x power zoom lens f=5.4 to 54 mm (7/32 to 2 1/4 inches) 39 to 390 mm (1 9/16 to 15 3/8 inches) when convered into a 35-mm still camera F 1.8 to 2.4 Filter diameter 37 mm (1 1/2 inches) TTL autofocus system inner focus wide macro system
Colour temperature	Auto
Minimum illumination	6 lx (F 1.8)
Illumination range	6 lx to 100,000 lx
Recommended illumination	More than 100 lx

Input and output connectors

S video output	4-pin mini DIN Luminance signal: 1 Vp-p, 75 ohms, unbalanced, sync negative Chrominance signal: 0.3 Vp-p, 75 ohms, unbalanced
Video output	Phono jack, 1 Vp-p, 75 ohms, unbalanced, sync negative
Audio output	Phono jacks (2: stereo L and R), –7.5 dBs, (at load impedance 47 kilohms) impedance less than 2.2 kilohms
RFU DC OUT	Special mini-jack, DC 5 V
Headphones jack	Stereo mini-jack (ø 3.5)
Remote jack	Stereo mini-mini-jack (ø 2.5)
MIC jack	Stereo mini-jack, –66 dBs low impedance with 2.5 to 3 V DC, output impedance 6.8 kilohms (ø 3.5)
Handycam Station terminal	20pin special connector

General

Power requirements	7.2 V (battery pack) 6.5 V (AC power adaptor)
Power consumption	6.5 W (camera recording) including the viewfinder
Installation	Vertically, Horizontally
Operating temperature	0°C to 40°C (32°F to 104°F)
Storage temperature	–20°C to +60°C (–4°F to 140°F)
Dimensions	Approx. 96 x 102 x 173 mm (w/h/d) (3 7/8 x 4 1/8 x 6 7/8 inches)
Mass	Approx. 730 g (1lb 10 oz) excluding the battery pack, lithium battery, cassette, and shoulder strap Approx. 900 g (2.0 lb) including the battery pack NP-500H, lithium battery CR2025, cassette E5-60, and shoulder strap
Microphone	Electret condenser microphone, stereo type
Supplied accessories	

MICROFILM

Hi8 VIDEO CAMERA RECORDER

SONY®

AC Power Adaptor (AC-V505)

Power requirements	100 - 240 V AC, 50/60 Hz
Power consumption	18 W Charge mode: 23 VA (100 V AC), 33 VA (240 V AC) Operating mode: 25 VA (100 V AC), 34 VA (240 V AC)
Output voltage	DC OUT: 6.5 V, 1.5 A in operating mode Battery charge terminal: 8.4 V, 1.1 A in charge mode
Application	Sony battery pack NP-500/500H
Operating temperature	0°C to 40°C (32°F to 104°F)
Storage temperature	–20°C to 60°C (–4°F to 140°F)
Dimensions	Approx. 68 x 44 x 107 mm (w/h/d) (2 3/4 x 1 3/4 x 4 1/4 inches) including projecting parts
Mass	Approx. 260 g (9.2 oz)

Handycam Station

RFU DC output	Special minijack, 5 V DC
Video output	Phono jack (1): 1 Vp-p, 75Ω unbalanced, sync negative
S video output	4-pin mini DIN connector (1) Luminance signal: 1 Vp-p, 75Ω unbalanced, sync negative Chrominance signal: 0.3 Vp-p, 75Ω unbalanced
Audio output	Phono jack (2; stereo L/R): –7.5 dBs Output impedance: less than 1 kΩ
Remote jack	Stereo mini-mini-jack (ø 2.5)
Power requirements	100 – 240 V AC, 50/60 Hz
Power consumption	18 W Charge mode: 22 VA (100 V AC), 30 VA (240 V AC) Operating mode: 23 VA (100 V AC), 32 VA (240 V AC)
Output voltage	6.5 V, 1.5 A in operating mode 8.4 V, 1.1 A in charging mode
Operating temperature	0°C to 40°C (32°F to 104°F)
Storage temperature	–20°C to 60°C (–4°F to 140°F)
Dimensions	Approx. 154 x 45 x 163 mm (w/h/d) (6 1/8 x 1 13/16 x 6 1/2 inches) including projecting parts
Mass	Approx. 580 g (1 lb 4 oz)

Battery pack (NP-500H)

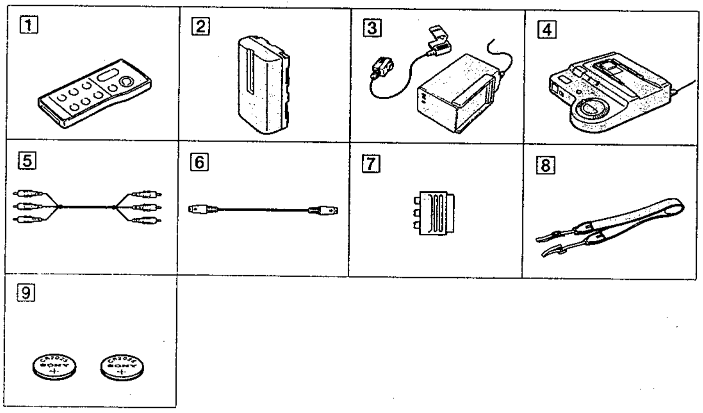
Battery used	Lithium-ion rechargeable battery
Maximum output voltage	DC 8.4 V
Mean output voltage	DC 7.2 V
Capacity	1200 mAh
Operating temperature	0°C to 40°C (32°F to 104°F)
Dimensions	Approx. 38.4 x 20.6 x 70.8 mm (w/h/d) (1 9/16 x 13/16 x 2 7/8 inches)
Mass	Approx. 95 g (3.4 oz)

Note

This appliance conforms with EEC Directive 87/308/EEC regarding interference suppression.

Design and specifications are subject to change without notice.

Check that the following accessories are supplied with your camcorder.



1 Wireless Remote Commander (1)

2 NP-500H Battery Pack (1)

3 AC-V505 AC power adaptor (1)

4 AC-HS1 Handycam Station (1)

5 A/V connecting cable (1)

6 S video connecting cable (1)

7 21-pin adaptor (1)

8 Shoulder strap (1)

9 CR2025 Lithium Battery (2)
One of these is already installed in the camcorder.

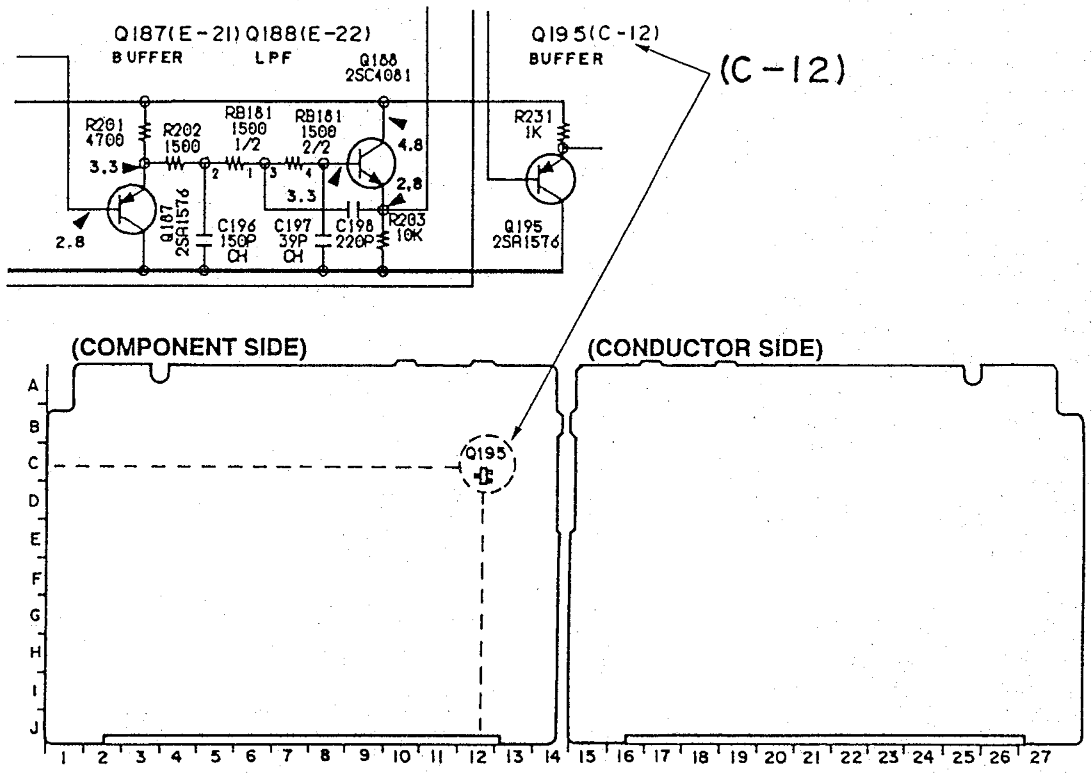
SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer.

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and brides.
2. Check the interboard wiring to ensure that no wires are “pinched” or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, throught functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replace-ment.
5. Check the B+ voltage to see it is at the values specified.
6. Flexible Circuit Board Repairing
   - Keep the temperature of the soldering iron around 270℃ during repairing.
   - Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
   - Be careful not to apply force on the conductor when soldering or unsoldering.

[DISPLAY OF SEMICONDUCTOR LOCATIONS]

The locations for mounting semiconductors (IC, transistor, diode) are shown in red in circuit diagrams, as shown in the figure below.
This enables semiconductors to be located easily in the printings when repairing.
Please use them in repairs.


Q187(E-21) Q188(E-22)
BUFFER
LPF
Q188
2SC4081
Q195(C-12)
BUFFER
(C-12)
R201
4700
R202
1500
RB181
1500
1/2
RB181
1500
2/2
4.8
3.3
2.8
3.3
2.8
Q187
2SA1576
C196
150P
CH
C197
39P
CH
C198
220P
R203
10K
R231
1K
Q195
2SA1576
(COMPONENT SIDE)
(CONDUCTOR SIDE)
Q195
A
B
C
D
E
F
G
H
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[HEAD CLEANING]

After an extended period of use the video image may become indistinct or may not appear at all during playback of a tape. The cause of this usually are dirty video heads. For remedy, cleaning of the heads is required.

Check for Head Clogs During Recording

① Use a blank tape, record a short section, then press the stop button to stop.
② Set to recording mode again.
③ If the [✖] mark is flashing in the viewfinder at this time, head clogs are occurred.

Check During Playback of a Tape

① Play back a pre-recorded tape and display the image on a TV screen.
② If there is no sound and the image is unstable, no image appears on the screen, or tape transport is unstable, head clogs are occurred.

Remedy

[Cleaning method using a cleaning tape]

- Use the Cleaning Tape. (Please follow the instructions attached to the cleaning tape.)

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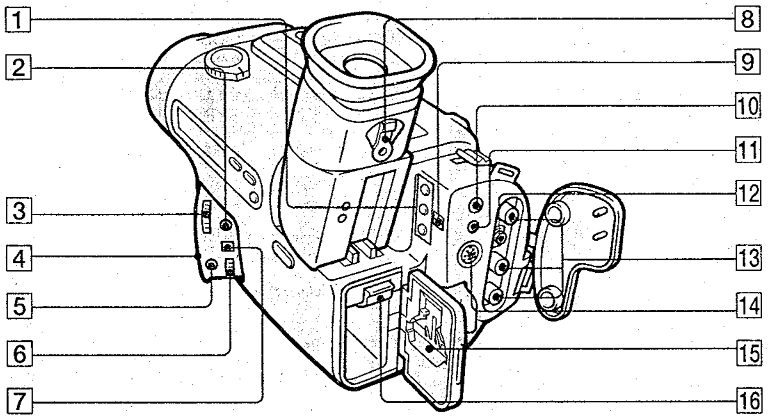
Identifying the Parts



1 **Menu operation buttons** (p.33)

2 **FOCUS button** (p.30)

3 **FOCUS dial** (p.30)

4 **AUTO LOCK cover** (p.29)

5 **EXPOSURE button** (p.31)

6 **EXPOSURE dial** (p.31)

7 **PROGRAM AE button** (p.32)

8 **Viewfinder lens adjustment lever** (p.10)

9 **STEADY SHOT switch** (p.13)

10 **PHONES (headphones) jack (stereo)** (p.15)

11 **REMOTE Ⓛ (LANC) control jack**
Connect the LANC Ⓛ connecting cable to a wired remote control unit such as a editing controller. In this case, set the COMMANDER mode to OFF in the menu system (p.33).
Ⓛ stands for Local Application Control Bus System. The Ⓛ control jack is used for controlling the tape transport of video equipment and peripherals connected to it. This jack has the same function as the connectors indicated as CONTROL L or REMOTE.

12 **RFU DC OUT (RFU adaptor DC out) jack** (p.18)

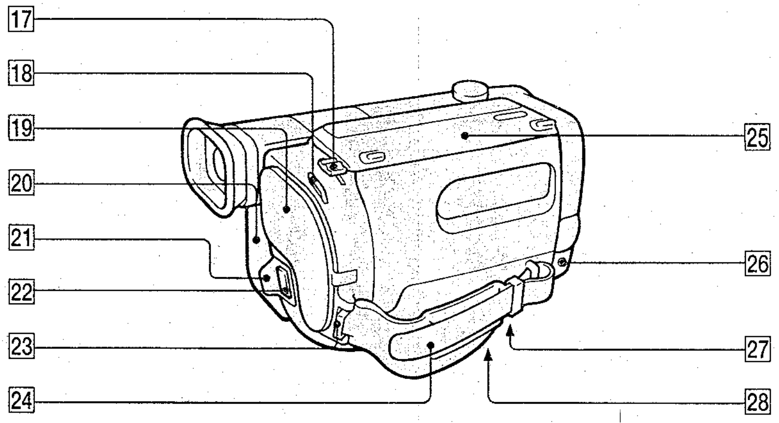
13 **VIDEO/AUDIO jacks** (p.18)

14 **S VIDEO jack (4-pin mini-DIN connector)** (p.18)

15 **Lithium battery compartment** (p.38)

16 **BATT (battery) release key** (p.8)

This mark indicates that this product is a genuine product related to our 8mm video equipment.
When purchasing 8mm video equipment provided with this mark, we recommend that you purchase related 8mm video products provided with the same mark or products provided with our logotype mark.



17 **Power zoom lever** (p.14)

18 **Hook for shoulder strap** (below)

19 **Jack cover**

20 **Battery compartment** (p.8)

21 **STANDBY cover** (p.12)

22 **START/STOP button** (p.12)

23 **Hook for shoulder strap** (below)

24 **Grip strap** (p.11)

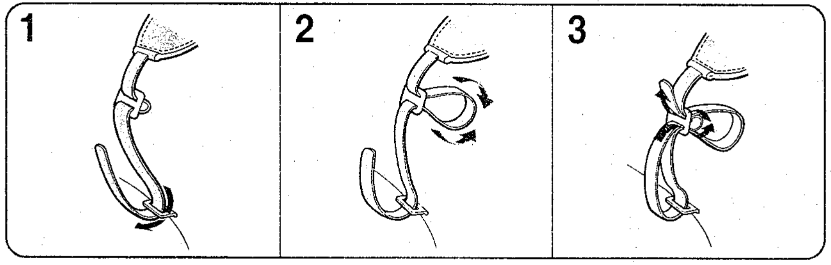
25 **Cassette compartment lid** (p.9)

26 **MIC jack**

27 **Instant stand** (p.11)

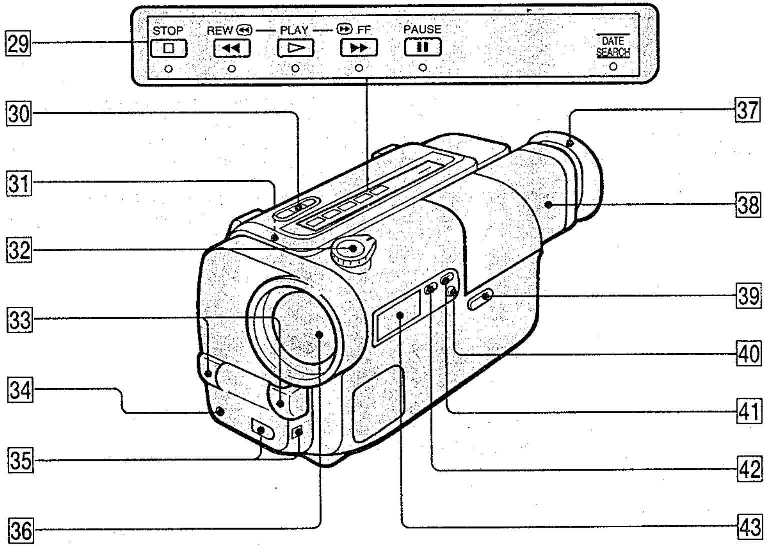
28 **Tripod receptacle** (p.11)
Attach a tripod (not supplied) here.
When attaching a non-SONY tripod, make sure that the length of the camera mounting screw is shorter than 6.5 mm (9/32 inches). Otherwise, the screw might damage the inner part of the camcorder.

Attaching the shoulder strap
Attach the supplied shoulder strap to the hooks for the shoulder strap (18, 23).



This section is extracted from instruction manual.

Identifying the Parts


STOP
REW
PLAY
FF
PAUSE
DATE SEARCH
29
30
31
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33
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42
43

29 Tape transport buttons (p.19)
□ STOP
◀◀ REW (rewind)
▷ PLAY (playback)
▶▶ FF (fast forward)
❚❚ PAUSE
DATE SEARCH
These buttons will light up and function in PLAYER mode.

30 EDITSEARCH button (p.15)

31 EJECT button (p.9)

32 POWER switch (p.12, 19)

33 Built-in microphone (stereo)

34 Camera recording/battery lamp (p.12, 41)

35 Remote sensors (p.54)

36 Lens cover

37 Eyecup (p.11)

38 Viewfinder (p.10)

39 FADER button (p.28)

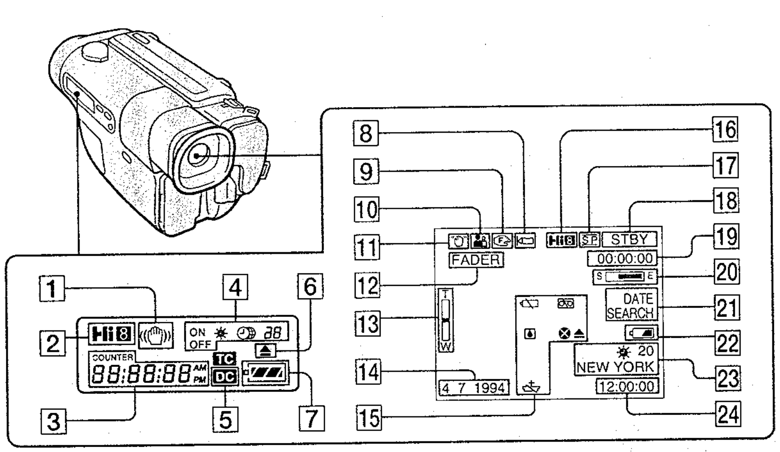
40 COUNTER RESET button (p.12)

41 TIME(NEXT) button (p.21, 27, 39)

42 DATE(+) button (p.21, 27, 39)

43 Display window (p.53, 55)

In the Display Window and the Viewfinder


1
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Hi8
ON
OFF
88
COUNTER
88:88:88
AM
PM
TC
DC
8
9
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13
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15
FADER
T
W
4 7 1994
Hi8
SP
STBY
00:00:00
S
E
DATE SEARCH
20
NEW YORK
12:00:00
16
17
18
19
20
21
22
23
24

1 Steady shot indicator (p.13)

2 Playing back or recording in Hi8 format (p.40)

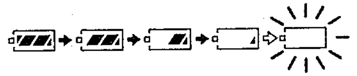
3 Tape counter, time or date indicator (p.12, 39)

4 World clock indicators (p.35)

5 RC Time Code indicator (p.34)/**Data Code indicator** (p.21)

6 Warning indicator (p.55)

7 Battery remaining indicator (p.41)



8 Wind noise reduction indicator (p.34)

9 Manual focusing (p.30)

10 PROGRAM AE mode indicator (p.32)

11 Steady shot indicator (p.13)

12 FADER indicator (p.28)

13 Power zoom indicator (p.14) / **Exposure indicator** (p.31)

14 Date or time indicator for Data Code (p.21, 22)

15 Warning indicator (p.55)

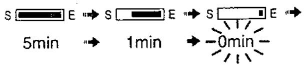
16 Lights up while recording in Hi8 system (p.12, 40)

17 Indicates the recording mode when recording/playing back a tape (p.12, 40)

18 Tape transport mode (p.12, 19)

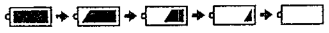
19 Tape counter (p.12)

20 Tape remaining indicator


S
E
5min
1min
0min

21 Date Search/Scan indicator (p.22)

22 Battery remaining indicator (p.41)

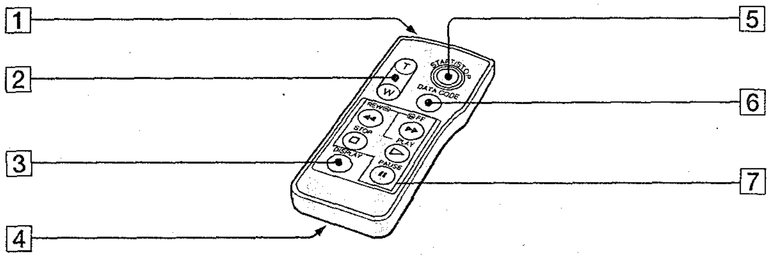


23 World clock indicator (p.35)

24 Date or Time (p.27)

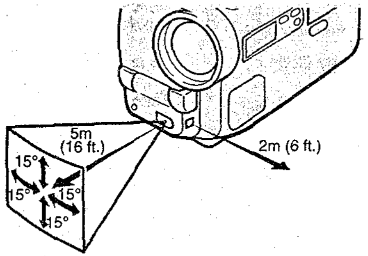
Identifying the Parts

Wireless Remote Commander



1. **Transmitter**
   Point toward the remote sensor to control the camcorder after turning the POWER switch on the camcorder.
2. **Power zoom button**
3. **DISPLAY button**
   Press to display the viewfinder screen indicators on the TV when you connect the camcorder to a TV.
   To erase the indicators, press again.
4. **Lithium battery holder** (p.6)
5. **START/STOP button**
6. **DATA CODE button** (p.21)
7. **Tape transport buttons**

Remote Control Direction

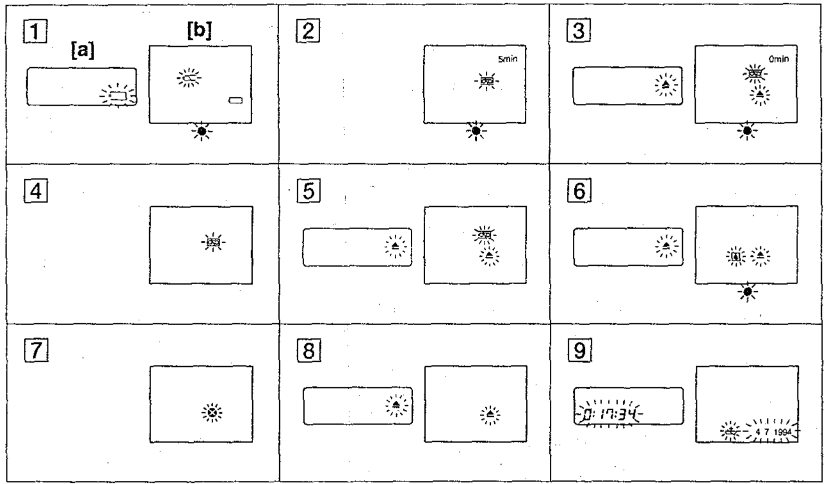


Notes on the Remote Commander

- Keep the remote sensor away from strong light sources such as direct sunlight or illumination. Otherwise, the remote control may not be effective.
- Be sure that there is no obstacle between the remote sensor and the Remote Commander.
- This camcorder works at commander mode VTR 2. The commander modes (1, 2 and 3) are used to distinguish this camcorder from other Sony VCRs to avoid remote control misoperation. If you use another Sony VCR at commander mode VTR 2, we recommend you change the commander mode or cover the remote sensor of the VCR with black paper.

Warning Indicators

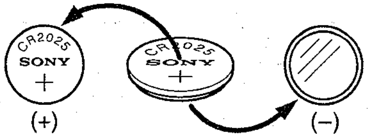
If indicators flash in the display window [a] or the viewfinder [b], or a caution lamp on the camcorder flahses, check the following:



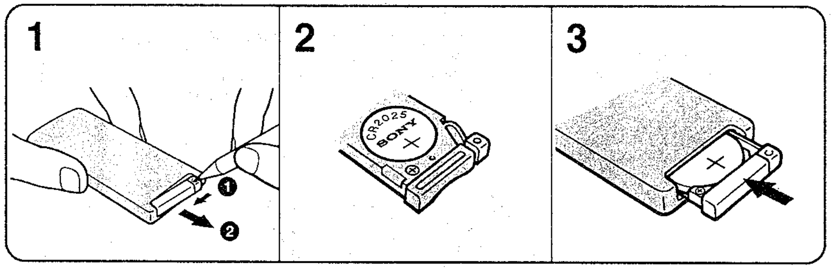
1. Battery Remaining
   Slow flashing: The battery is weak.
   Fast flashing: The battery is dead.
2. The tape is near the end.
3. The tape has run out.
4. No tape has been inserted.
5. The tab on the tape is out (red) (p.40).
6. Moisture condensation has occurred (p.42).
7. The video heads may be contaminated (p.43).
8. Some other trouble has occurred.
   Disconnect the power source and contact your Sony dealer or local authorized facility.
9. The lithium battery is weak or the lithium battery is not installed (p.38).

Installing the Lithium Battery into the Remote Commander

To use the Remote Commander, you must insert the supplied CR2025 lithium battery. Note that the lithium battery has a positive (+) and a negative (–) terminal as illustrated.
Be sure to install the lithium battery so that terminals on the battery match the terminals on the Remote Commander.



(1) Pull out the lithium battery holder from the Remote Commander. (2) Insert the new lithium battery with the positive (+) side facing upward. (3) Put the lithium battery holder back into the Remote Commander.



Cautions

- Keep the lithium battery out of the reach of children. Should the battery be swallowed, consult a doctor immediately.
- Do not hold the battery with the metallic tweezers, otherwise a short-circuit may occur.
- The Battery may explode if mistreated. Do not recharge, disassemble, or dispose of in fire.

Lithium Battery Life

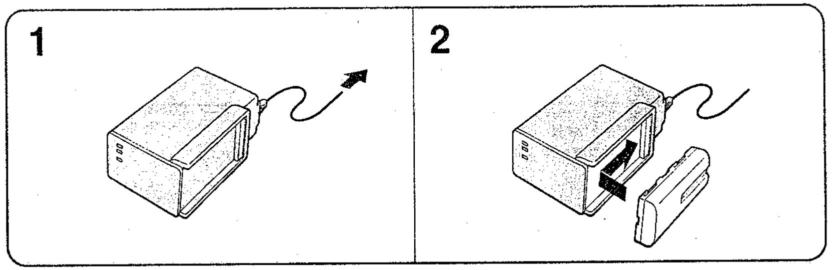
See "Replacing the Lithium Battery (p.38)".

Charging and Installing the NP-500H Battery Pack

Before using your camcorder, you first need to charge and insert the supplied NP-500H battery pack. The supplied battery pack has been slightly charged when you purchase the camcorder.
You can charge the battery pack by using the supplied AC-V505 AC power adaptor.

Charging with the AC Power Adaptor

(1) Connect the AC power adaptor to a wall outlet. (2) Align the surface of the battery pack indicated by the ▸ mark with the edge of the terminal shutter of the AC power adaptor. Then fit and slide the battery pack along the guides. The orange CHARGE lamp flashes or lights and charging begins. When charging is completed, the CHARGE lamp goes out. Detach the battery pack and insert it into your camcorder (P.8).
You can also use the battery pack before it is completely charged. For charging time and battery life, refer to the table below.



There are some other methods to charge the battery pack. For detailed information, see "Description of Charging the Battery Pack (p.24)".

Notes

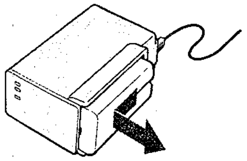
- When a fully charged battery pack is installed, the CHARGE lamp will light once, then goes out.
- Charging is not performed during operation of the video equipment connected to the AC power adaptor. If you operate the video equipment during charging, the charging will stop and the CHARGE lamp will go out.

Charging Time and Battery Life

Charging time*	Typical recording time**	Continuous recording time***
2 hour 30 minutes	30 minutes	50 minutes

* Approximate charging time to charge an empty NP-500H battery pack (Lower temperatures require a longer charging time.)
** Approximate recording time when you repeat recording, zooming, turning the power on/off, etc. (The actual recording time may be shorter.)
*** Approximate continuous recording time indoors

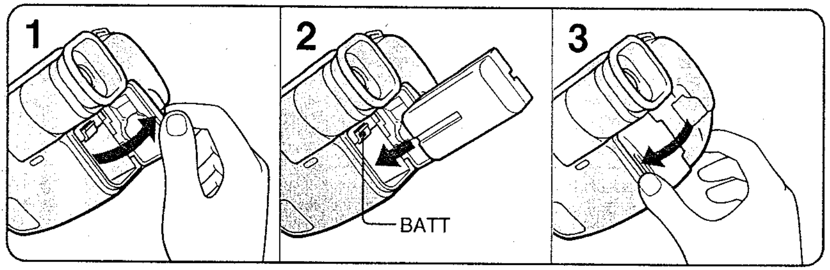
Detaching the Battery Pack
Slide the battery pack in the direction of the arrow.



Charging and Installing the NP-500H Battery Pack

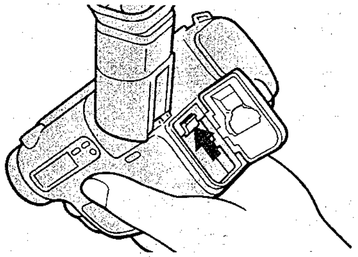
Inserting the Battery Pack into the Camcorder

(**1**) Open the lid of the battery compartment. (**2**) Insert the battery pack until it is hooked by the BATT (battery) release key. (**3**) Close the lid.



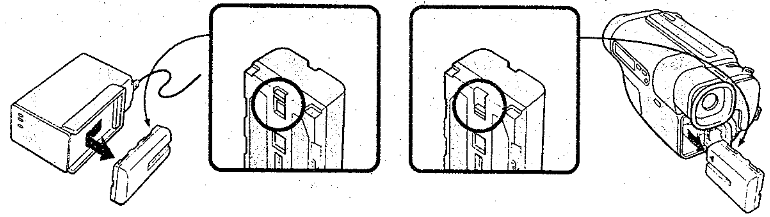
To Remove the Battery Pack

Pointing down the lens of the camera, slide the BATT (battery) release key upward.



The switch on the battery pack

This switch is provided to help you remember the charging status of the battery. Set the switch to the "green mark" position after charging. (When detached from the AC power adaptor, the switch exposes the green mark. When detached from your camcorder, no mark is indicated.)

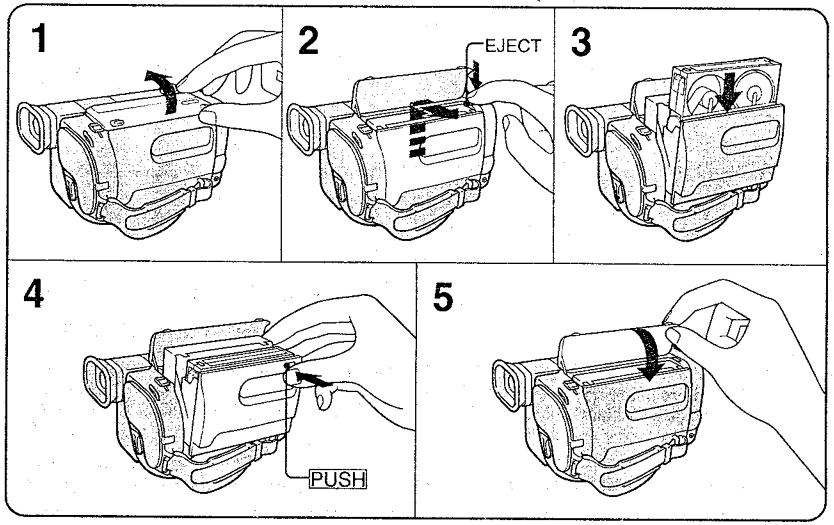


Inserting a Cassette

Make sure that a power source is installed.

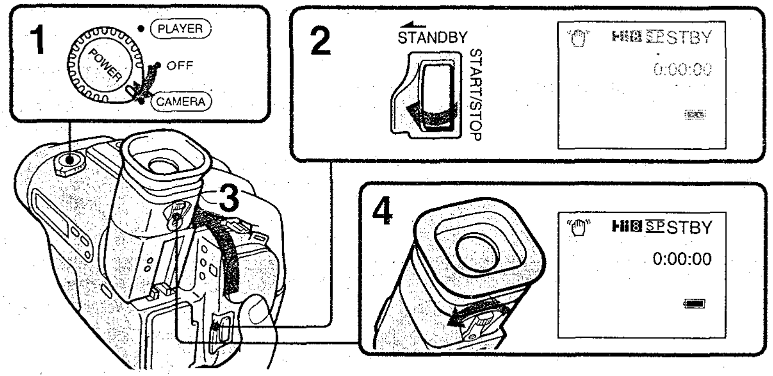
(**1**) Open the lid of the cassette compartment. (**2**) Press EJECT. The cassette compartment automatically lifts up and opens. (**3**) Insert a cassette (not supplied) with the window facing out. (**4**) Press the PUSH mark on the cassette compartment cover to close it. (**5**) Close the lid.

To eject the cassette, press EJECT.



Adjusting the Viewfinder Lens

Before you use the camcorder for the first time or after someone else has used it, focus the viewfinder lens. Make sure that the power source is connected to the camcorder.
(1) Set the POWER switch to CAMERA. (2) Open the STANDBY cover. (3) Turn the viewfinder up. (4) Move the viewfinder lens adjustment lever so that the indicators in the viewfinder come into sharp focus.

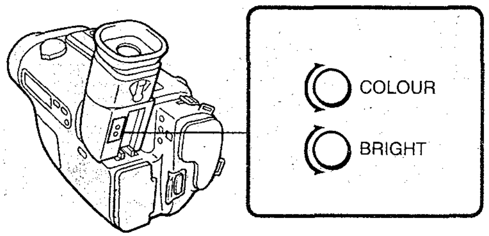


To adjust the picture quality [a]
If you want to change colour and brightness of the picture displayed on the viewfinder screen, turn the screws on the viewfinder slowly using a screwdriver (not supplied). You do not need to adjust them in everyday operation.

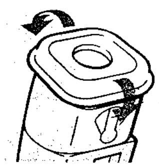
	Turn clockwise	Turn counterclockwise
COLOUR	More colour intensity	Less colour intencity
BRIGHT	More brightness	Less brightness

If you wear glasses [b]
You can bend back the eyecup to get a better view of the viewfinder.

[a]



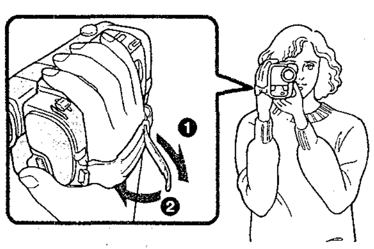
[b]



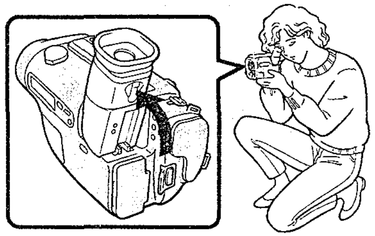
Hints for Better Shooting

For hand-held shots, you'll get better results holding the camcorder according to the following suggestions:

[a]



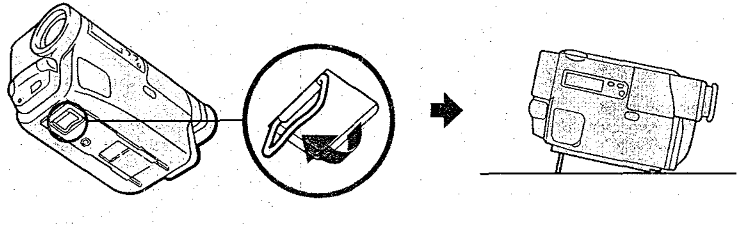
[b]



- Hold the camcorder firmly and secure it with the grip strap so that you can easily manipulate the controls with your thumb. **[a]**
- Place your right elbow against your side.
- Place your left hand under the camcorder to support it.
- Place your eye firmly against the viewfinder eyecup.
- Use the viewfinder frame as a guide to determine the horizontal plane.
- You can also record in a low position to get an interesting recording angle. Turn the viewfinder up for recording from a low position. **[b]**

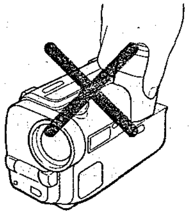
Place the camcorder on a flat surface or use a tripod
Try placing the camcorder on a table top or any other flat surface of suitable height. If you have a tripod for a still camera, you can also use it with the camcorder (p.51). Make sure the tripod screw is shorter than 6.5mm (9/32 in).

Use the instant stand
Lift up the stand at the bottom of the camcorder. Do not attach a shoulder strap to the stand.

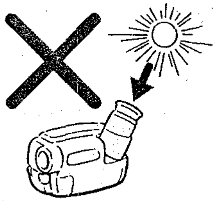


Cautions on the viewfinder
- Do not pick up the camcorder by the viewfinder. **[c]**
- Do not place the camcorder so as to point the viewfinder toward the sun. The inside of the viewfinder may be deformed. Be careful in placing the camcorder under sunlight or at the window. **[d]**

[c]



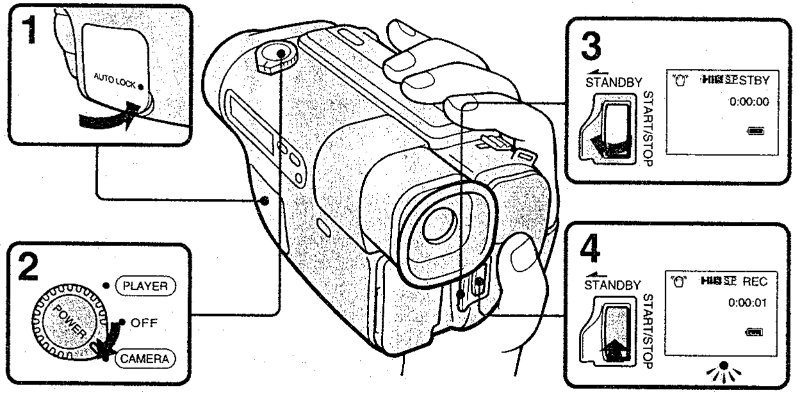
[d]



Basic Operation

Camera Recording

Make sure that a power source is installed and a cassette is inserted. Before you record one-time events, you may want to make a trial recording to make sure that you are using the camcorder correctly.
(**1**) Close the AUTO LOCK cover for automatic adjustment (p.29). (**2**) Set the POWER switch to CAMERA.
(**3**) Open the STANDBY cover. (**4**) Press START/STOP. The camcorder starts recording and the "REC" indicator will appear in the viewfinder.
You can also select Recording mode, SP (standard play) mode or LP (long play) mode. Set REC MODE in the menu system (p.33) according to the length of your planned recording before you start recording.



To Stop Recording Momentarily

Press START/STOP again. The "STBY" indicator appears in the viewfinder (**Standby mode**).

To Finish Recording

Close the STANDBY cover and set the POWER switch to OFF.
Then, eject the tape (p.9).

Note on Standby mode
If you leave the camcorder for 5 minutes or more with a cassette inserted in Standby mode, the camcorder goes off automatically. This prevents wearing down the battery and wearing out the tape. To resume Standby mode, close the STANDBY cover once and open it again. To start recording, press START/STOP.

Note on recording
When you record from the beginning of the tape, run the tape for about 15 seconds before actual recording. This prevents the camcorder from missing any start-up scenes when you play back the tape.

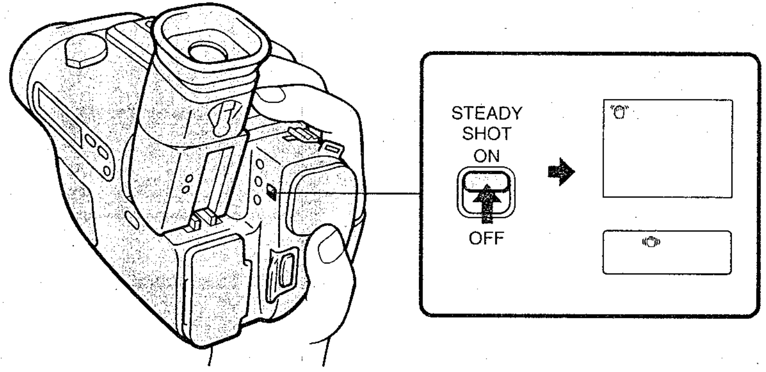
Note on the tape counter
The tape counter indicates the recording or playback time. Use it as a guide. There will be a time lag of several seconds from the actual time. To set the counter to zero, press COUNTER RESET located at the righthand of the display window.

Recording mode
This camcorder records in the SP mode (approximately 20.051 mm/second) and in the LP mode (approximately 10.058 mm/second) and can play back in the SP mode and LP mode. The quality of the playback picture in the LP mode, however, will not as good as that in the SP mode.

Getting a Steady Picture

You can use the Steady Shot function to compensate for camera-shake in the following cases.
- When you zoom in
- When you shoot while moving
- When you shoot from a car window

Set STEADY SHOT to ON. The "✋" indicator appears in the viewfinder and the «✋» indicator in the display window.



To Release the Steady Shot Function

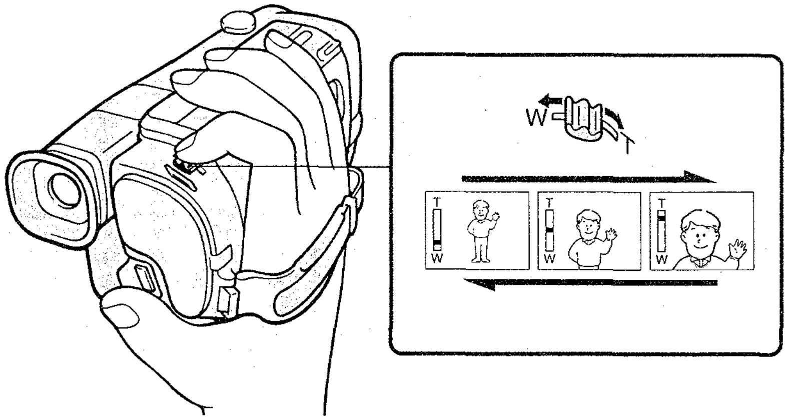
Set STEADY SHOT to OFF.

Notes on the Steady Shot function
- The Steady Shot function will not correct excessive camera-shake.
- When you switch the STEADY SHOT, the exposure may vary.

When you shoot stationary object with a tripod
Set STEADY SHOT to OFF.

Using the Zoom Feature

Zooming is a recording technique that lets you change the size of the subject in the scene. You can also use the zoom to focus manually or to decide on a shooting angle before you start recording. For more professional-looking recordings, use the zoom sparingly.
T side: for telephoto (subject appears closer)
W side: for wide-angle (subject appears farther away)



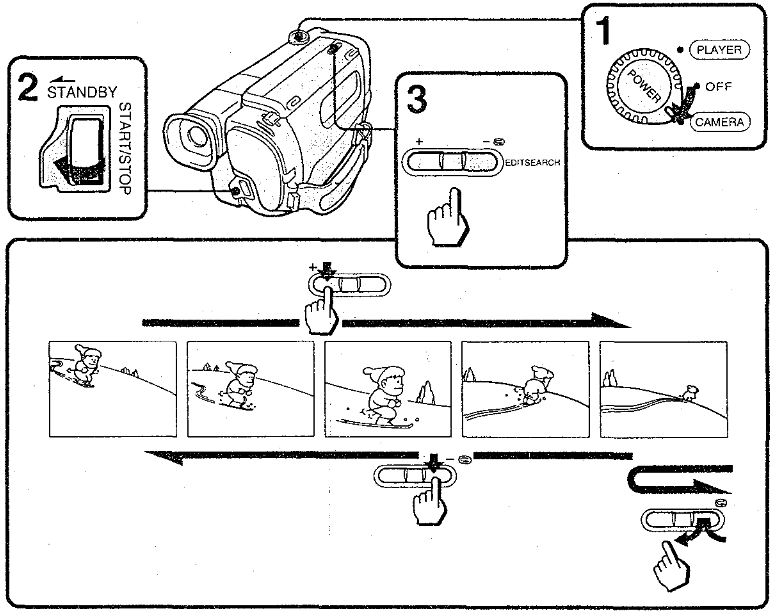
Zooming Speed
Slide the power zoom lever firmly for a high-speed zoom. Slide it softly for a relatively slow zoom.

When you shoot a subject using a telephoto zoom
If you cannot get a sharp focus while in extreme telephoto zoom, slide the W side of the power zoom lever until the focus is sharp.
You can shoot a subject that is at least 90 cm (about 3 feet) away from the lens surface in the telephoto position, or 1 cm (about 1/2 inches) in the wide-angle position.

Manual focusing in macro
You can also shoot with manual focus while doing close-ups (p.30).

Checking the Recorded Picture in the Viewfinder

Using EDITSEARCH, you can review the last recorded scene or check the recorded picture in the viewfinder. **(1)** Set the POWER switch to CAMERA. **(2)** Open the STANDBY cover. **(3)** Press EDITSEARCH. Press the – (⊜) side momentarily, the last few seconds of the recorded portion plays back **(Rec Review)**.
Keep pressing EDITSEARCH to play back the last recorded portion **(Edit Search)**.
+ side: to view the forward playback picture
– side: to view the reverse playback picture



Monitoring the Sound While Viewing the Playback Picture in the Viewfinder
Connect headphones (not supplied) to the PHONES jack. Play back the tape in PLAYER mode (p.19).

To Stop Playback
Release EDITSEARCH.

To Begin Re-recording
Press START/STOP. Re-recording begins from the point you released EDITSEARCH. Provided you do not eject the tape, the transition between the last scene you recorded and the next scene you record will be smooth.

Connections for Playback

You can use this camcorder as a VCR by connecting it to your TV for playback. There are some ways to connect your camcorder.

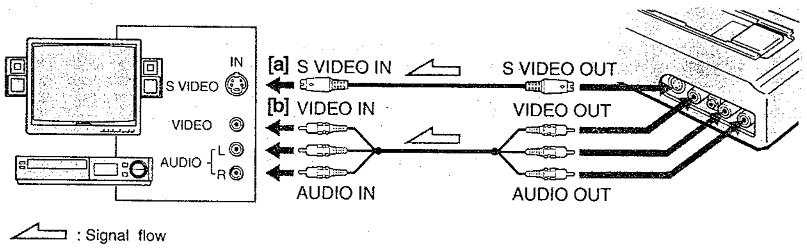
- Connecting to a TV or VCR using the Handycam Station (p.16)
- Connecting to a TV with Video/Audio input jacks or a VCR (p.18)
- Connecting to a TV without Video/Audio input jacks (p.18)

Connecting to a TV or VCR Using the Handycam Station

By connecting the AC-HS1 Handycam Station to your TV or VCR, you can view the playback picture on the TV easily.

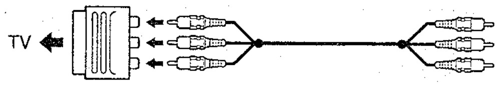
To Connect the Handycam Station to a TV or VCR

Connect the Handycam Station to the TV or VCR using the supplied connecting cable.
If you are going to connect the TV or VCR using the S video cable **[a]**, you do not need to connect the yellow (video) plug of the A/V connecting cable **[b]**.

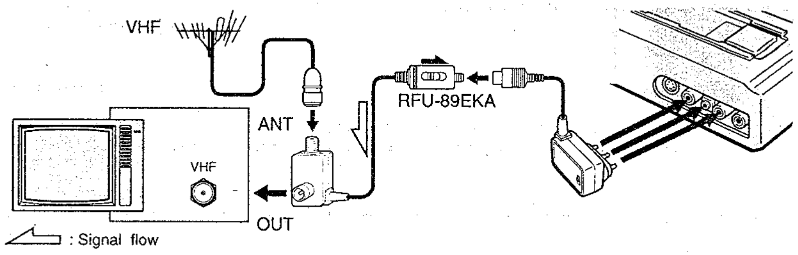

IN
S VIDEO
VIDEO
AUDIO L R
[a] S VIDEO IN
S VIDEO OUT
[b] VIDEO IN
VIDEO OUT
AUDIO IN
AUDIO OUT
: Signal flow

If your TV or VCR is a monaural type
Connect the Handycam Station to the TV or VCR using the supplied connecting cable. For audio connection, use only the white plug both on the Handycam Station and the TV or VCR. With this connection, the sound is in monaural.

If your TV has a 21-pin connector (EUROCONNECTOR)
Use the supplied 21-pin adaptor.

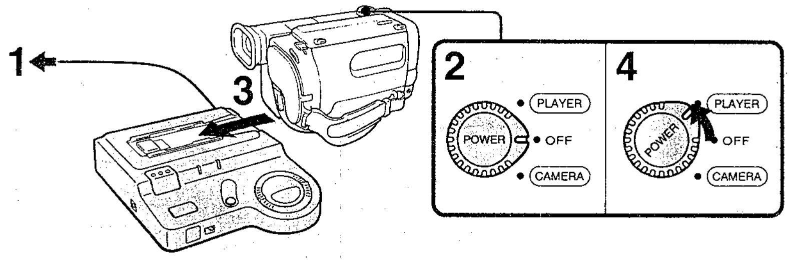


If your TV does not have video/audio input jacks
Connect the Handycam Station to the TV using an appropriate RFU adaptor such as the RFU-89EKA (not supplied).
For details on connection, refer to the instruction manual of the RFU adaptor.
The following illustrates the connection of the RFU-89EKA as an example.


VHF
ANT
RFU-89EKA
VHF
OUT
: Signal flow

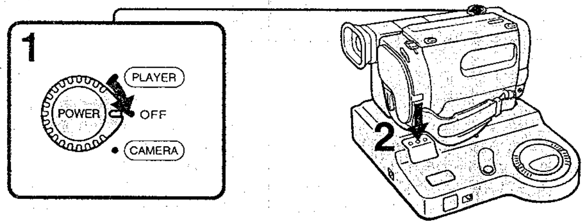
Fitting the Camcorder to the Handycam Station

(**1**) Connect the Handycam Station to a wall outlet. (**2**) Set the POWER switch to OFF. (**3**) Aligning the bottom rear of the camcorder with the arrow mark on the Handycam Station, slide the camcorder along the guide until it clicks. (**4**) Set the POWER switch to PLAYER.


1
3
2
PLAYER
POWER
OFF
CAMERA
4
PLAYER
POWER
OFF
CAMERA

Caution
Do not set the POWER switch to CAMERA. The Handycam Station can be used only for PLAYER mode.

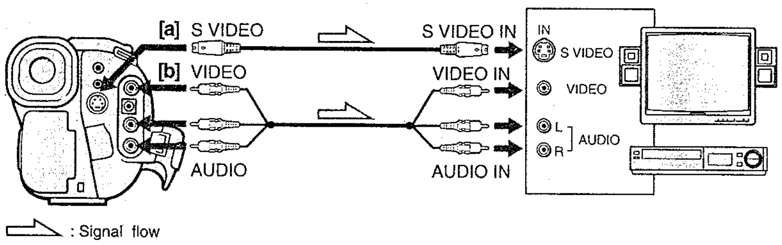
To Remove the Camcorder
(**1**) Set the POWER switch to OFF. (**2**) Press RELEASE on the Handycam Station.


1
PLAYER
POWER
OFF
CAMERA
2

Connection for Playback

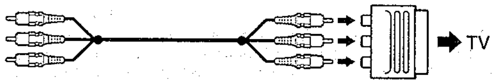
Connecting to a TV with Video/Audio Input Jacks or a VCR

Connect the camcorder to your TV or VCR by using the supplied connecting cable. Set the TV/VCR selector to VCR on the TV. When Connecting the camcorder to VCR, set the input selector on the VCR to LINE.
If you are going to connect the camcorder using the S video cable **[a]**, you do not need to connect the yellow (video) plug of the A/V connecting cable **[b]**.



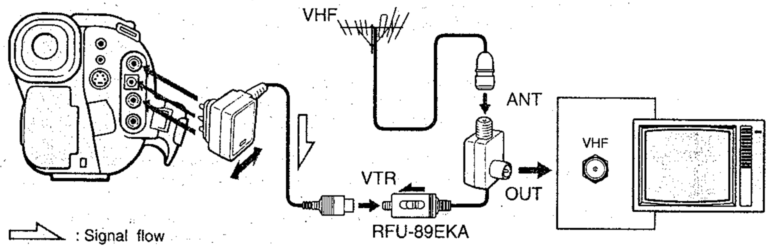
If your TV or VCR is a monaural type, connect only the white plug for audio on both the camcorder and the TV or the VCR. With this connection, the sound is in monaural.

If your TV has a 21-pin connector (EUROCONNECTOR)
Use the supplied 21-pin adaptor.



Connecting to a TV without Video/Audio Input Jacks

Connect the camcorder to the TV using an appropriate RFU adaptor such as the RFU-89EKA (not suppiled). For details on connection, refer to the instruction manual of the RFU adaptor.
The following illustrates the connection of the RFU-89EKA as an example.

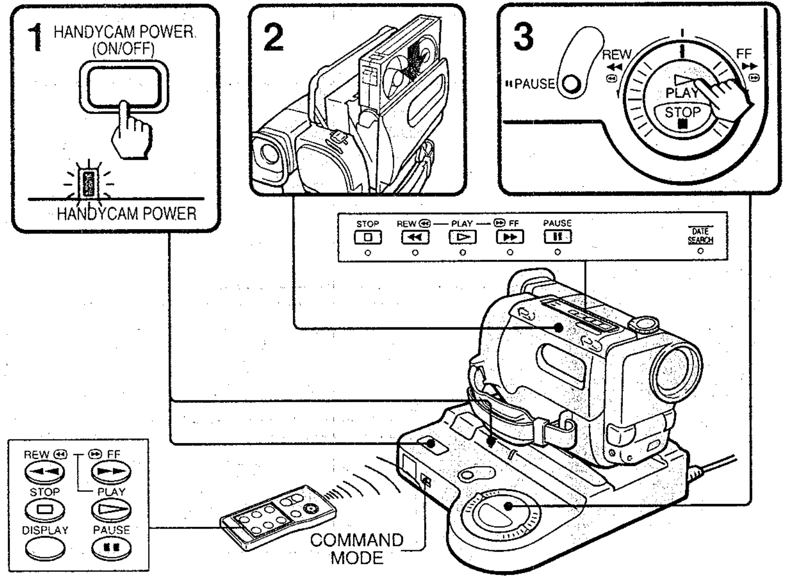


Playing Back a Tape ▶

You can monitor the playback picture in the viewfinder. You can also monitor on the TV screen, after connecting the camcorder to the TV/VCR (p.16). It is recommended to use the house current as the power source (p.26). You can control playback using the supplied Remote Commander. Before using the Commander with the Handycam Station, set the COMMAND MODE selector on the Handycam Station to VTR 2, and point the Remote Commander to the remote sensor of the Handycam Station.

When you playback tapes, set the TV/VCR selector on the TV to VCR, or the input selector on the VCR to LINE. If you connect with the RFU adaptor, set the channel selector on the RFU adaptor and your TV channel to whichever VHF channel is not active (vacant) in your area.

Before operating the camcorder, be sure that the POWER switch is set to PLAYER.
(1) Press HANDYCAM POWER on the Handycam Station. The HANDYCAM POWER lamp lights up.
(2) Insert the recorded tape with the window facing out. **(3)** Press ▷. Playback starts.



When playing back without the Handycam Station
Before operating the camcorder, set the POWER swiitch to PLAYER. The tape transport buttons on the camcorder will light up. Use them to control playing back.

To stop playback, press □.
To rewind the tape, turn the shuttle ring on the Handycam Station counterclockwise, or press ◀◀.
To advance the tape, turn the shuttle ring on the Handycam Station clockwise, or press ▶▶.

See the next page for further information.

Various Playback Modes

To view a still picture (Playback Pause)
Press ❚❚ during playback. To resume playback, press ❚❚ or ▷.

To locate a scene (Picture Search)
Keep pressing ◀◀ or ▶▶ during playback. To resume normal playback, release the button.

To monitor the high-speed picture during fastforward or rewind (Skip Scan)
Keep pressing ◀◀ while rewinding or ▶▶ while advancing the tape. To resume normal playback, press ▷.

To view the picture in a sequence of stop-motion images
Press EDITSEARCH of the camcorder in playback pause mode. If you keep pressing EDITSEARCH, you can view the picture playback in the forward (+) or reverse (–) direction.

Notes on playback

- Streaks appear and the sound is muted in the various playback modes.
- When still picture mode lasts for 5 minutes or more, the camcorder automatically enters stop mode.

To select the monitor sound
Change the "HiFi SOUND" mode setting in the menu system (p.33).

To display the viewfinder screen indicators on the TV
Press DISPLAY on the Remote Commander.
To erase the indicators, press DISPLAY again.

About the COMMAND MODE Selector of the Handycam Station
The commander modes are used to distinguish Sony VCRs to avoid remote control misoperation.
Set the COMMAND MODE selector to VTR 2, because the supplied Remote Commander operates at commander mode VTR 2. If you have a Sony VCR, you can also use the Remote Commander of the VCR by matching the commander mode setting.

Displaying the Date or Time When You Recorded

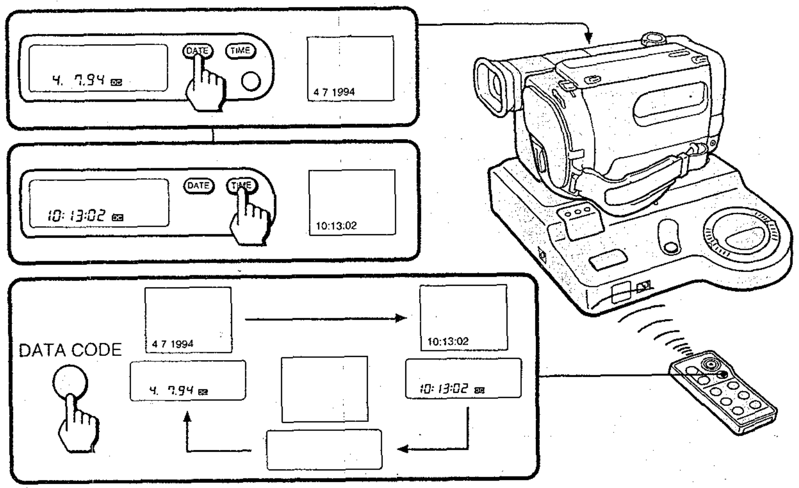
Even if you did not record the date or time when you were recording, you can display the date or time when you recorded (Data Code) on the TV during playback or editing. The Data Code is also displayed in the viewfinder and display window.

To Display the Date When You Recorded

Press DATE (+) on the camcorder, or press DATA CODE on the Remote Commander.
To make the date disappear, press DATE (+) again or DATA CODE twice.

To Display the Time When You Recorded

Press TIME (NEXT) on the camcorer, or press DATA CODE on the Remote Commander twice.
To make the time disappear, press it again.



When bars (–:– –:– –) appear

- Playing back in the reverse direction by pressing – side of EDITSEARCH in playback pause mode
- A blank portion of the tape is being played back.
- The tape was recorded in the LP mode.
- The tape was recorded by a camcorder without the Data Code function.
- The tape was recorded by a camcorder without having date and time set.
- The Data Code is unreadable due to tape damage or noise.

Note
Data Code may be erased if you record PCM sounds or index signals over pictures that have data code by using another 8 mm VCR.

Searching the Boundaries of Recorded Date

You can search pictures of which is boundary of the date when you recorded. This works by reading the Data Code recorded on the tape. You don't need to record the date when camera recording.

There are following two modes:

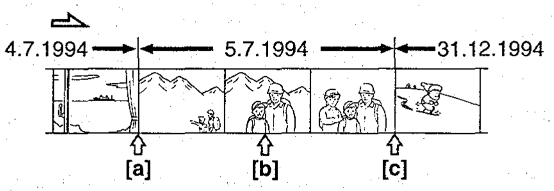
- Searching a boundary of recorded date, and playing back from there (**Date Search**)
- Searching the boundaries of recorded date one after another playing back about 10 seconds each (**Date Scan**)

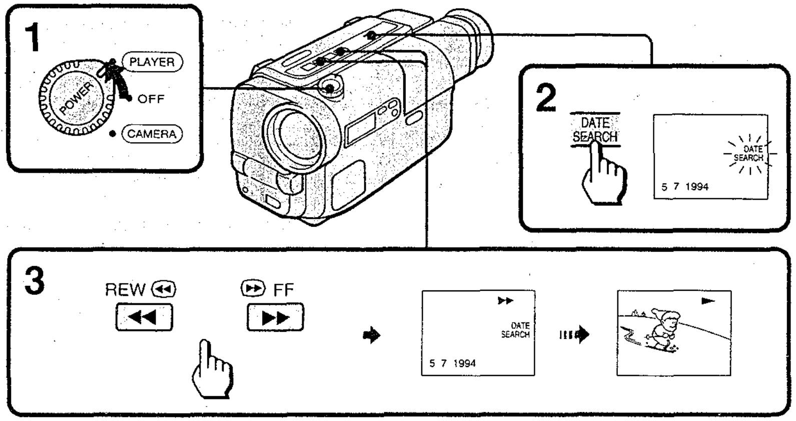
Every pressing DATE SEARCH changes mode as follows:

Date Search → Date Scan → Normal

To Search a Boundary of the Recorded Date

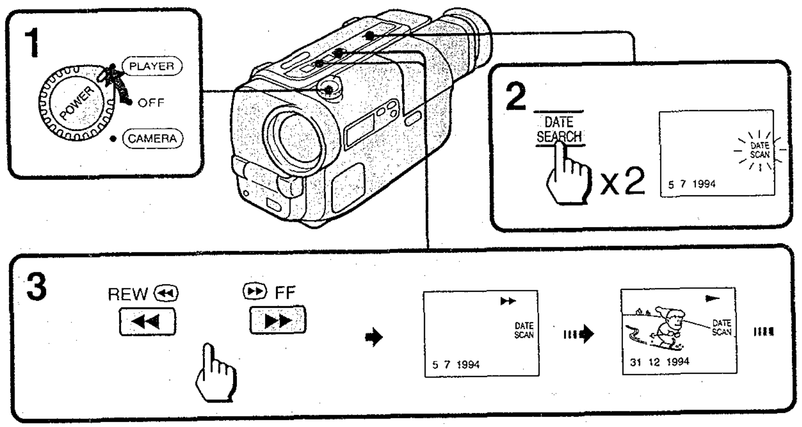
(**1**) Set the POWER switch to PLAYER. The tape transpose buttons will light up. (**2**) Press DATE SEARCH. (**3**) Press ◀◀ to search for **[a]** or press ▶▶ to search for **[c]** when the current position is **[b]**.


4.7.1994
5.7.1994
31.12.1994
[a]
[b]
[c]


1
PLAYER
POWER
OFF
CAMERA
2
DATE SEARCH
DATE SEARCH
5 7 1994
3
REW
FF
◀◀
▶▶
DATE SEARCH
5 7 1994

To Scan the Boundaries of Recorded Date

(**1**) Set the POWER switch to PLAYER. The tape transpose buttons will light up. (**2**) Press DATE SEARCH twice. (**3**) Press ◀◀ or ▶▶. Date Scan starts.


1
PLAYER
POWER
OFF
CAMERA
2
DATE SEARCH
x2
DATE SCAN
5 7 1994
3
REW
FF
◀◀
▶▶
DATE SCAN
5 7 1994
DATE SCAN
31 12 1994

To stop searching or scaning

Press one of the buttons: □, ◀◀, ▷ or ▶▶.

To view pictures during searching or scaning

Press ▷ before pressing ◀◀ or ▶▶.

Notes on Date Search and Date Scan mode

- A space between boundaries of recorded date should be longer than 2 minutes. It may not be detected when the space is shorter.
- Date Search and Date Scan do not function for the tape recorded by another camcorder without the Date Code function.

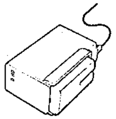
Description of Charging the Battery Pack

To charge the battery pack, you can choose from the following three methods.

- Charging it by directly attaching it to the AC power adaptor (p.7, 24).
- Charging it by inserting it into the camcorder (p.24). – To use anytime you need
- Charging two battery packs consecutively (p.25).

Charging by Directly Attaching It to the AC power Adaptor

Charge the battey pack by directly attaching it to the AC power adaptor (p.7).



Charging Time and Battery Life

Model	Charging time*	Typical recording time**	Continuous recording time***
AC-V505	2 hours 30 minutes	30 minutes	50 minutes

* Approximate charging time to charge an empty NP-500H battery pack (Lower temperatures require a longer charging time.)

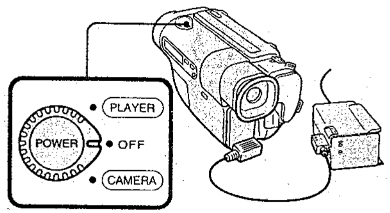
** Approximate recording time when you repeat recording, zooming, turning the power on/off, etc. (The actual recording time may be shorter.)

*** Approximate continuous recording time indoors

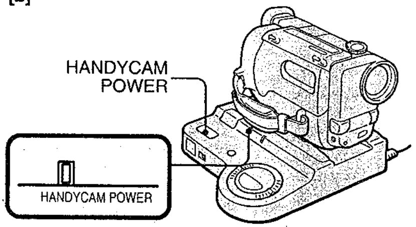
Charging It by Inserting It in the Camcorder – To use anytime you need

You can also charge the battery pack installed in the camcorder.
Install the battery pack into the camcorder (p.8). Connect the camcorder to the AC power adaptor and set the POWER switch to OFF **[a]** (p.26), or fit the camcorder to the Handycam Station and press HADYCAM POWER to go out the HANDYCAM POWER lamp **[b]** (p.17). The battery remaining indicator appears in the display window and charging begins. You can check the charged capacity by looking at the battery remaining indicator during charging.
When charging has been completed, the battery remaining indicator disappears after flashing for a while. For charging time and battery life, refer to the table on the next page.
While charging, the camcorder may heat up. This is not cause for concern.

[a]



[b]



Charging Time and Battery Life

Model	Charging time*	Typical recording time**	Continuous recording time***
AC-V505	2 hours 30 minutes	30 minutes	50 minutes
AC-HS1	2 hours 30 minutes		

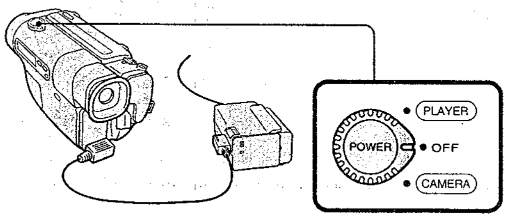
* Approximate charging time to charge an empty NP-500H battery pack (Lower temperatures require a longer charging time.)

** Approximate recording time when you repeat recording, zooming, turning the power on/off, etc. (The actual recording time may be shorter.)

*** Approximate continuous recording time indoors

Charge Two Battery Packs Consecutively

You can charge two battery packs consecutively. Charge one battery pack by attaching it directly to the AC power adaptor (p.7), and another battery pack by installing it into the camcorder.
When charging is completed, the battery remaining indicator disappears following the CHARGE lamp on the AC power adaptor went out. For charging time and battery life, refer to the table below.



Charging Time and Battery Life

Model	Charging time*	Typical recording time**	Continuous recording time***
AC-V505	3 hours	30 minutes each	50 minutes each

* Approximate charging time to charge an empty NP-500H battery pack (Lower temperatures require a longer charging time.)

** Approximate recording time when you repeat recording, zooming, turning the power on/off, etc. (The actual recording time may be shorter.)

*** Approximate continuous recording time indoors

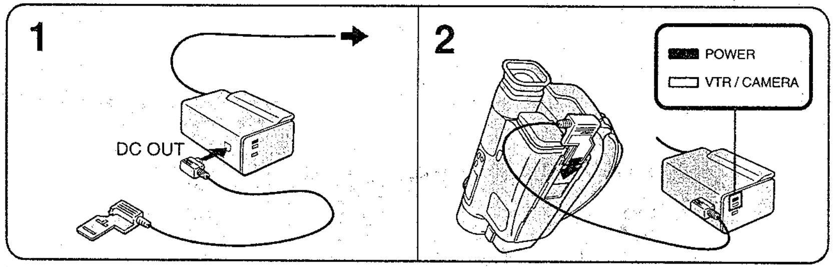
Using Alternate Power Sources

You can choose any of the following power sources for your camcorder: battery pack (P.8), house current, and 12/24 V car battery. Choose the appropriate power source depending on where you want to use your camcorder.

Place	Power source	Accessory to be used
Indoors	House current	Handycam Station AC-HS1 (supplied) (cannot be used for camera recording)
		AC power adaptor AC-V500/V505
Outdoor	Battery pack	Battery pack NP-500H (supplied) Battery pack NP-500 (not supplied)
In the car	12 V or 24 V car battery	Car battery charger DC-V500 (not supplied)

Using House Current

Use the supplied AC-V505 AC power adaptor.
(1) Connect the power cord to a wall outlet, and connect the supplied connecting cord to the DC OUT jack on the AC power adaptor. **(2)** Insert the connecting plate into the guides at the bottom of the camcorder.
The orange VTR/CAMERA lamp lights while the camcorder is operating.



Note on the AC power adaptor
Keep the AC power adaptor away from video equipment if video operation is disturbed.

Note on the instant stand
Do not use the instant stand (p.11) when you connect the connecting cord to the camcorder. The connecting plate will be stressed that may cause a malfunction. The camcorder will be unstable.

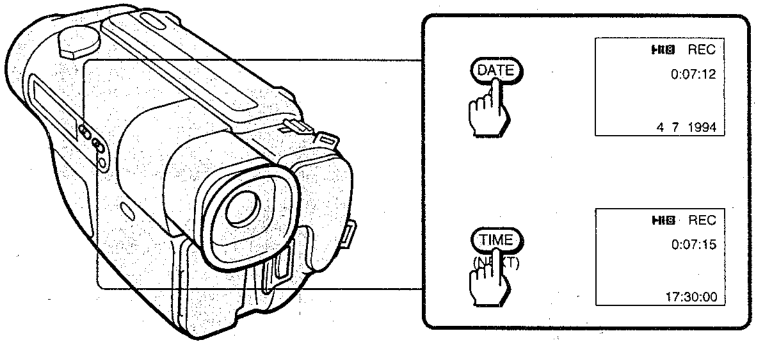
Caution
To prevent accident from a short circuit, do not come into contact with the terminal inside the shutter at the bottom of the camcorder.

Using a Car Battery

Use the DC-V500 car battery charger (not supplied). Connect the car battery cord to the cigarette lighter socket of a car (12V or 24V). Connect the car battery charger and the camcorder using the supplied connecting cord.

Recording the Date or Time

Before you start recording, press DATE (+) or TIME (NEXT). You can record the date or time displayed in the viewfinder with the picture. You cannot record the date and time at the same time. Except for the date or time indicator, no indicator in the viewfinder is recorded.
The clock is set to the time of LONDON for the United Kingdom model, and to the time of PARIS for the other European models at the factory. To change the time zone, reset the clock (p.39) or use the world clock (p.35).



To Stop Recording with the Date or Time

Press DATE (+) or TIME (NEXT) again. Recording continues.

Fade-in and Fade-out

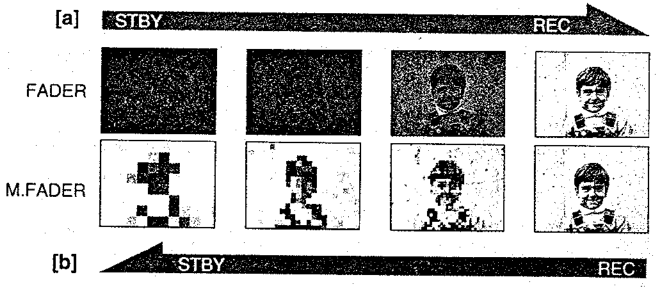
You can fade in or fade out to give your recording a professional appearance. When fading in, the picture will gradually appear from black or mosaic. The sound will also gradually increase. When fading out, the picture will gradually fade to black or mosaic. The sound will also decrease.

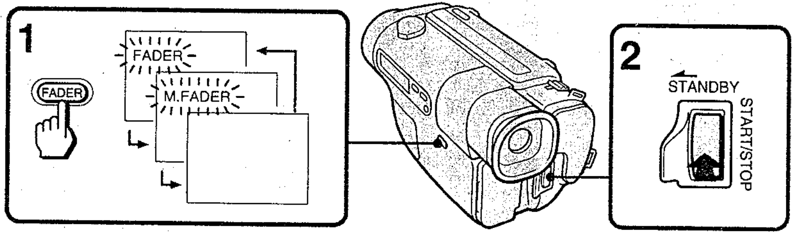
When Fading in [a]

(1) During the camcorder is in Standby mode, press FADER. The FADER indicator starts flashing.
(2) Press START/STOP to start recording. The FADER indicator stops flashing.

When Fading out [b]

(1) During recording, press FADER. The FADER indicator starts flashing. (2) Press START/STOP to stop recording. The FADER indicator stops flashing.





To Cancel the Fade-in/out Function

Before pressing START/STOP, press FADER once or twice until you have neither the FADER nor M.FADER indicator in the viewfinder.

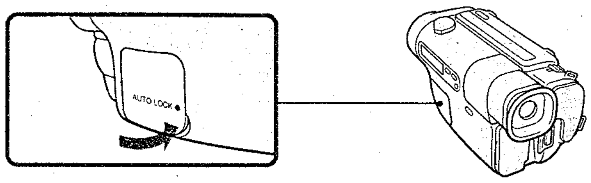
When the date/time indicator is displayed
The date/time does not fade in nor fade out.

Selecting Automatic or Manual Adjustment Modes

The camcorder's automatic functions offer you worry-free operation under most shooting conditions. But in some circumstances, manual adjustment is better for creative recording.

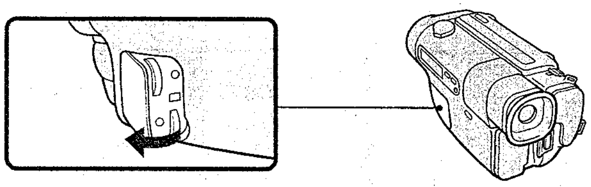
Automatic Adjustment Mode

Close the AUTO LOCK cover. In AUTO LOCK mode, the camcorder adjusts the focus and exposure automatically. It also sets the shutter speed to 1/100 when STEADY SHOT is set to ON and 1/50 when it is set to OFF.



Manual Adjustment Mode

Open the AUTO LOCK cover until it clicks. In manual mode, you can adjust the focus and the exposure manually, and select from three PROGRAM AE modes to fit the shooting situation.
Even if in manual mode, the settings you didn't adjust manualy remain the same as when in automatic adjustment mode.



About the previous settings
Manual settings are saved in the following case:

- When you resume automatic mode after you make manual adjustments and then select manual mode again.
- When you set the POWER switch to OFF

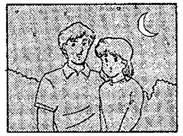
However, manual settings are cancelled if more than 5 minutes pass after you have detached the battery.

Focusing Manually

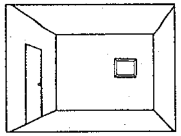
When to Use Manual Focus

Use manual focus under the following conditions:

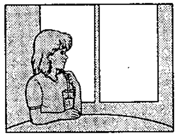
[a]



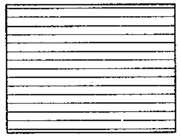
[b]



[c]



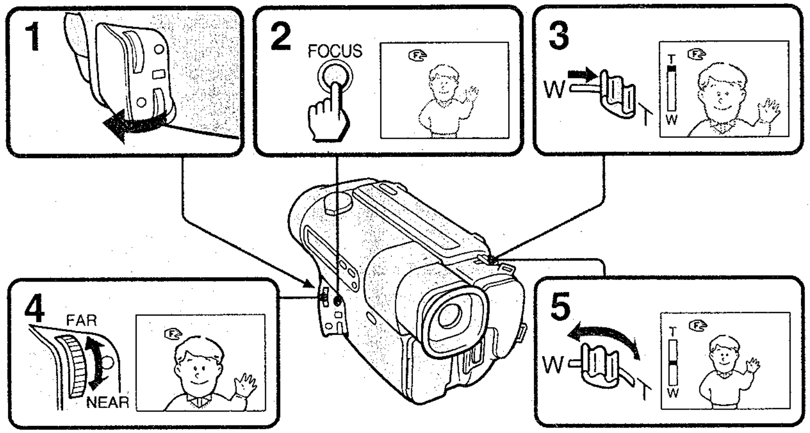
[d]



- Insufficient light **[a]**
- Subjects with little contrast – walls, sky, etc. **[b]**
- Too much brightness behind the subject **[c]**
- Horizontal stripes **[d]**
- Subjects through frosted glass
- Subjects beyond nets, etc.
- Bright subject or subject reflecting light
- Shooting a stationary subject when using a tripod

Focusing Manually

When focusing manually, first focus in telephoto before recording, and then reset the shot length. **(1)** Open the AUTO LOCK cover until it clicks. **(2)** Press FOCUS. The ⓕ indicator appears in the viewfinder. **(3)** Keep the power zoom lever to the T side until the zooming stops. **(4)** Turn the FOCUS dial to adjust the focus. **(5)** Set the desired shot length.



To Reactivate Auto Focusing

Press FOCUS again, or close the AUTO LOCK cover. The ⓕ indicator in the viewfinder disappears.

Shooting in relatively dark places
Shoot at wide angles after focusing in telephoto.

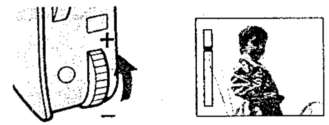
Note on the FOCUS dial
The FOCUS dial does not have a stop position.

Adjusting the Exposure

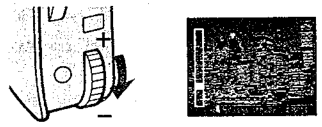
When to Adjust the Exposure

Adjust the exposure manually under the following cases.

[a]



[b]

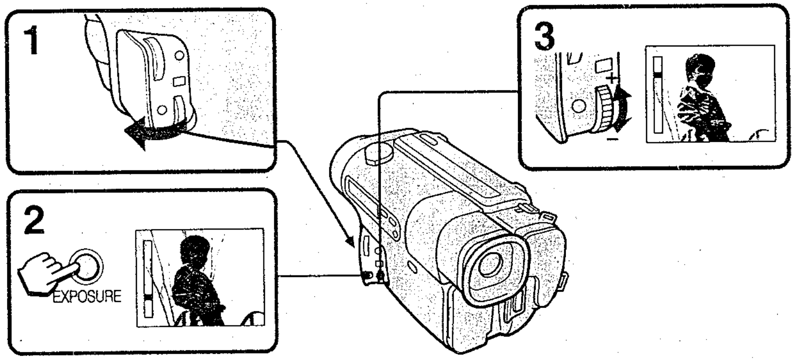


[a] Turn the EXPOSURE dial to + when:
- The background is too bright (back lighting)
- Insufficient light: most of the picture is dark

[b] Turn the EXPOSURE dial to – when:
- Bright subject and dark background
- To record the darkness faithfully

Adjusting the Exposure

(1) Open the AUTO LOCK cover until it clicks. **(2)** Press EXPOSURE. The exposure indicator appears in the viewfinder and the exposure is locked at the actual brightness. **(3)** Turn the EXPOSURE dial to adjust exposure. The exposure is locked at the adjusted brightness.



To Return to Automatic Exposure Mode

Press EXPOSURE again, or close the AUTO LOCK cover.

Shoot with the sun behind you
When the light source is behind your subject, or in the following situations, the subject will be recorded too dark.
- The subject is indoors and there is a window behind the subject.
- Bright light sources are included in the scene.
- When shooting a person wearing white or shiny clothes in front of a white background, the face will be recorded too dark.

Shoot in the dark
We recommend you to use the video light (not supplied). To get the best colour, you must maintain a sufficient light level.

Using the PROGRAM AE Function

You can select from three PROGRAM AE (Auto Exposure) modes to suit your shooting situation. When you use PROGRAM AE, you can get a Portrait effect (the subject is in focus and the background is out of focus) or capture high-speed action with Sports mode or High-Speed Shutter mode.

Selecting the Best Mode

Select the best mode by using the following examples.

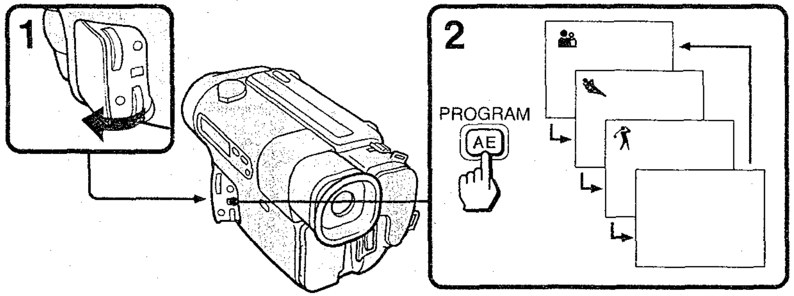
Portrait mode
- A still subject such as a person or flower
- Subject behind an obstacle such as a net
- Zooming in on a subject in telephoto

Sports mode
- Outdoor sports scenes such as football, tennis, golf or skiing
- A landscape in a moving car

High-speed shutter mode
- A golf swing or a tennis match in fine weather with the ball captured clearly
- Playing back certain scenes with high-speed movements in clear, sharp picture

Using the PROGRAM AE Function

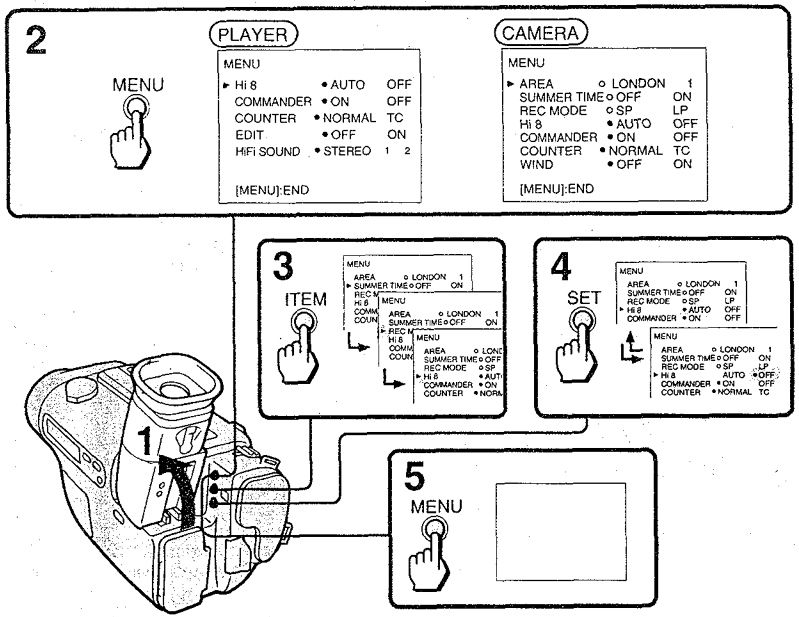
(1) Open the AUTO LOCK cover until it clicks. (2) Press PROGRAM AE repeatedly so that the desired mode indicator appears inside the viewfinder.



Note on shutter speed
The shutter speed in each PROGRAM AE mode is as follows:
Portrait mode – between 1/50 to 1/2000
Sports mode – between 1/50 to 1/500
High-speed shutter mode – 1/4000

Changing the Mode Settings

You can change the mode settings in the menu system to further enjoy the features and functions.
(1) Turn the viewfinder up. (2) Press MENU to display the menu in the viewfinder. (3) Press ITEM to move the cursor ▶ and select the desired item. (4) Press SET to move the cursor ● (or ○) and set the desired mode. If you want to change the other modes, repeat steps 3 and 4. (5) Press MENU to erase the menu display.



PLAYER

```
MENU
▶ Hi 8          • AUTO    OFF
  COMMANDER     • ON      OFF
  COUNTER       • NORMAL  TC
  EDIT          • OFF     ON
  HiFi SOUND    • STEREO  1  2

  [MENU]:END
```

CAMERA

```
MENU
▶ AREA          ○ LONDON    1
  SUMMER TIME   ○ OFF      ON
  REC MODE      ○ SP       LP
  Hi 8          • AUTO    OFF
  COMMANDER     • ON      OFF
  COUNTER       • NORMAL   TC
  WIND          • OFF      ON

  [MENU]:END
```

About the previous mode settings
When you detach the battery:
- The AREA, SUMMER TIME and REC MODE mode settings are retained (displayed with cursor ○).
- The other mode settings are saved for 5 minutes (displayed with cursor ●).

However, these settings are cancelled if the lithium battery is exhausted.

Selecting the Mode Setting of Each Item

Hi8 <AUTO/OFF>
- Select AUTO to have the camcorder automatically set the recording mode (Hi8 or standard 8 mm) depending upon cassette type being used.
- Select OFF to record a Hi8 tape in standard 8 mm format. See page 40 for details about cassette types.

COMMANDER <ON/OFF>
- Select ON when using the supplied Remote Commander for the camcorder.
- Select OFF when not using the Remote Commander for the camcorder.

See the next page for further information.

Changing the Mode Settings

COUNTER <NORMAL/TC>
- Select NORMAL to use the normal tape counter.
- Select TC to use the RC Time Code (see below) as the tape counter.

Options Displayed in PLAYER Mode Only

EDIT <ON/OFF>
- Select ON to minimize the picture deteriorations when editing.
- Select OFF otherwise.

HiFi SOUND <STEREO / 1 / 2 >
- Normally select STEREO.
- Select 1 or 2 to play back a dual soundtrack tape.

Options Displayed in CAMERA Mode Only

AREA

You cannot select this item unless the date and time are set (p.39).
- Select the area name of the time zone where you will use the camcorder when you use the world clock (p.35).

SUMMER TIME <ON/OFF>

You cannot select this item unless the date and time are set (p.39).
- Select ON to set the clock to summer time.
- Select OFF to set to standard time.

REC MODE <SP/LP>
- Select SP to record a tape in the SP (stadard play) mode.
- Select LP to record in the LP (long play) mode.

WIND <ON/OFF>
- Select ON to reduce wind noise when recording.
- Select OFF otherwise.

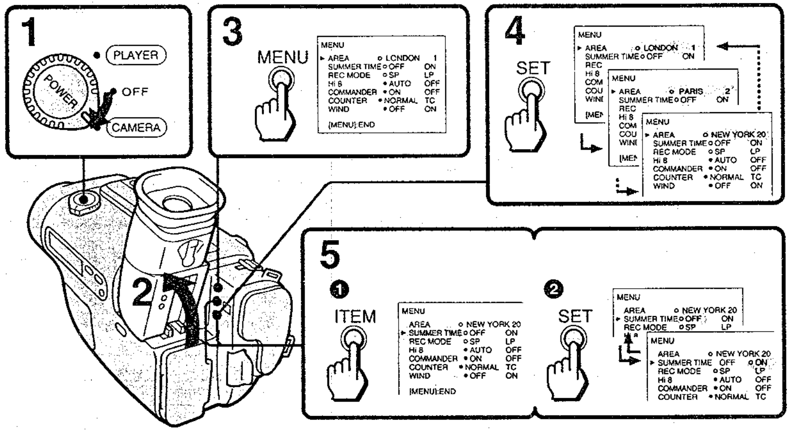
About the RC (Rewritable Consumer) Time Code

RC Time Code indicates absolute position of the tape by hour, minute, second and frame. Since a consecutive number is recorded for each frame, you can use the RC Time Code as the just tape counter for editing.

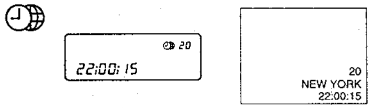
Using the World Clock

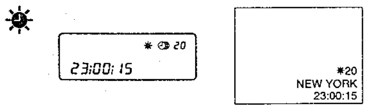
You can change the clock displayed according to the local time zone by setting AREA and SUMMER TIME modes in the menu system. First find the area name in the "Time zone chart" on page 36. The home area for the clock is set to LONDON for the United Kingdom model, and PARIS for the other European models at the factory. To change your home area, reset the clock (p.39).

(**1**) Set the POWER switch to CAMERA. (**2**) Turn the viewfinder up. (**3**) Press MENU to display the menu. (**4**) Press SET to select the area name where you will use the camcorder. (**5**) Press ITEM to select SUMMER TIME item. Press SET to select ON: for summer time or OFF: for standard time.


1
PLAYER
OFF
POWER
CAMERA
2
3
MENU
MENU
AREA ○ LONDON 1
SUMMER TIME ○ OFF ON
REC MODE ○ SP LP
Hi 8 • AUTO OFF
COMMANDER • ON OFF
COUNTER • NORMAL TC
WIND • OFF ON
[MENU]:END
4
SET
AREA ○ LONDON 1
AREA ○ PARIS 2
AREA ○ NEW YORK 20
5
❶
ITEM
❷
SET
SUMMER TIME OFF ○ ON

The ⊕ indicator appears in the display window and the area name appears in the viewfinder when using the world clock. The ☀ indicator appears in the display window and the viewfinder when setting to summer time.


20
22:00: 15
20
NEW YORK
22:00:15


* 20
23:00: 15
*20
NEW YORK
23:00:15

To Check the Date

Press DATE (+). To turn off the date indicator, press DATE (+) again.

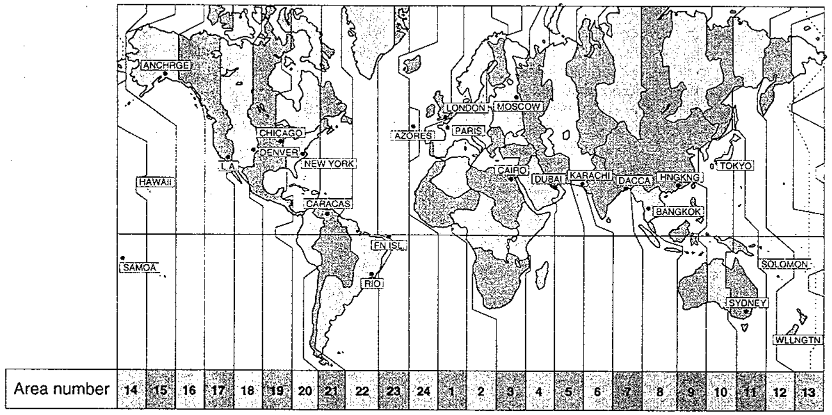
To Reset to Your Home Area Time

Reset the AREA mode in the menu system to your home area name.

See the next page for time zone chart.

Changing the Mode Settings

Time Zone Chart



Area number	Area name	Nations or area*
1	LONDON	England, GMT (Greenwich Mean Time), Morocco, Portugal
2	PARIS	Austria, France, Germany, Italy, Netherlands, Spain, Sweden, Switzerland, CET
3	CAIRO	Egypt, Finland, Greece, Israel, Turkey
4	MOSCOW	Ethiopia, Iraq, Kenya, Saudi Arabia, former U.S.S.R. (west)
5	DUBAI	United Arab Emirates
6	KARACHI	Maldives, Pakistan
7	DACCA	Bangladesh, India, Myanmar
8	BANGKOK	Cambodia, Indonesia (Jakarta), Thailand, Vietnam
9	HNGKNG	Australia (west), China, Hong Kong, Indonesia (Bali, Borneo), Malaysia, Philippines, Singapore, Taiwan
10	TOKYO	Japan, Korea
11	SYDNEY	Australia (east), Guam, Saipan
12	SOLOMON	New Caledonia
13	WLLNGTN	Fiji, New Zealand
14	SAMOA	Western Samoa
15	HAWAII	Hawaii I., Tahiti, HST (Hawaii Standard Time)
16	ANCHRGE	U.S.A. (Alaska), AST (Alaska Standard Time)
17	L.A.	U.S.A. (Los Angeles, San Francisco), PST (Pacific Standard Time)
18	DENVER	U.S.A. (Denver), MST (Mountain Standard Time)
19	CHICAGO	Mexico, U.S.A. (Chicago), CST (Central Standard Time)
20	NEWYORK	Canada (Montreal), Jamaica, Peru, U.S.A. (New York, Washington D.C), EST (East Standard Time)
21	CARACAS	Chili, Dominica, Venezuela
22	RIO	Argentina, Brazil, Uruguay
23	FN ISL.	Fernando de Noronha
24	AZORES	Azores Islands

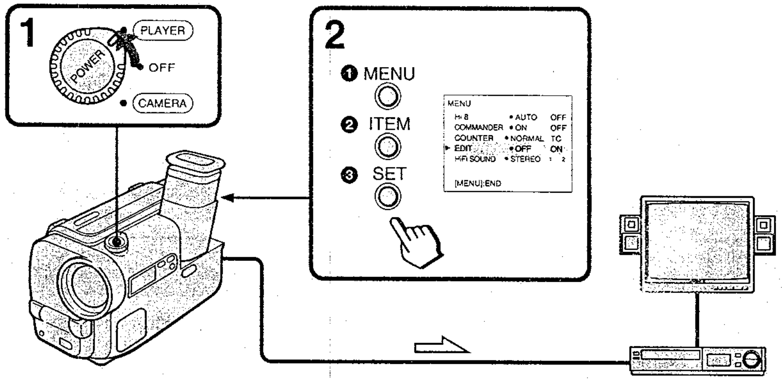
* These are common names. They may be different from formal country names.

Editing onto Another Tape

You can create your own video program by editing with any other 8 8 mm, Hi8 Hi8, VHS VHS, SVHS S-VHS, VHSC VHSC, SVHSC S-VHSC, or B Betamax VCR that has video/audio inputs.

Before Editing

After fitting the camcorder to the Handycam Station that is connected to your VCR,
(1) Set the POWER switch to PLAYER, (2) Set EDIT mode to ON in the menu system (p.33).



MENU
Hi 8 • AUTO OFF
COMMANDER • ON OFF
COUNTER • NORMAL TC
▶ EDIT • OFF ON
HiFi SOUND • STEREO 1 2
[MENU]:END

:Signal flow

Starting Editing

(1) Insert a blank tape (or a tape you want to record over) into the recording VCR. Then insert your recorded tape into the camcorder. (2) Play back the recorded tape on the camcorder until you locate the point where you want to start editing. Then set the camcorder to playback pause mode. (3) Set the recording VCR to recording pause mode. (4) Press ❚❚ on the camcorder and VCR simultaneously to start editing.

To Edit More Scenes

Repeat steps 2 to 4.

To Stop Editing

Press □ STOP on the camcorder and VCR. When you finish editing, reset EDIT mode to OFF (p.33).

Use of the EDITSEARCH button

To play back a tape in the forward or reverse direction keep pressing EDITSEARCH during playback pause. You can play back still pictures successively at specific intervals by pressing EDITSEARCH intermittently.

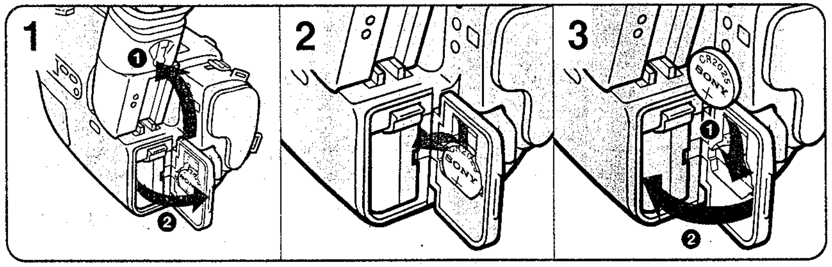
Note on DISPLAY function

If you have displayed the viewfinder screen indicators on the TV (DISPLAY function), erase the indicators by pressing DISPLAY on the Remote Commander so that they will not be superimposed on the edited tape.

Replacing the Lithium Battery

Replacing the Lithium Battery into the Camcorder

To activate the clock and the world clock, you must insert a lithium battery.
When replacing the lithium battery, keep the battery pack or other power source attached. Otherwise, you will need to reset the date and time. See the page 6 for more information on the lithium battery.
(1) Turn the viewfinder up and open the lid of the battery compartment. **(2)** Push the lithium battery down once and pull it out from the holder. **(3)** Install the lithium battery with the positive (+) side facing out. Close the lid.

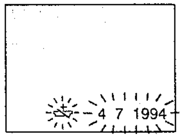


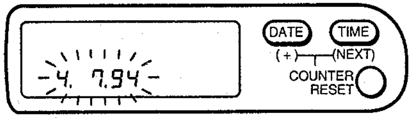
Lithium Battery Life

The lithium battery for the camcorder lasts for about 1 year under normal operation. When the battery becomes weak or dead, the date or time indicator keeps flashing in the display window and ⚠ indicator flashes in the viewfinder for about 5 seconds when you set the POWER switch to CAMERA.

The lithium battery for the Remote Commander lasts for about 1 year under normal operation. When the battery becomes weak or dead, the Commander does not work.

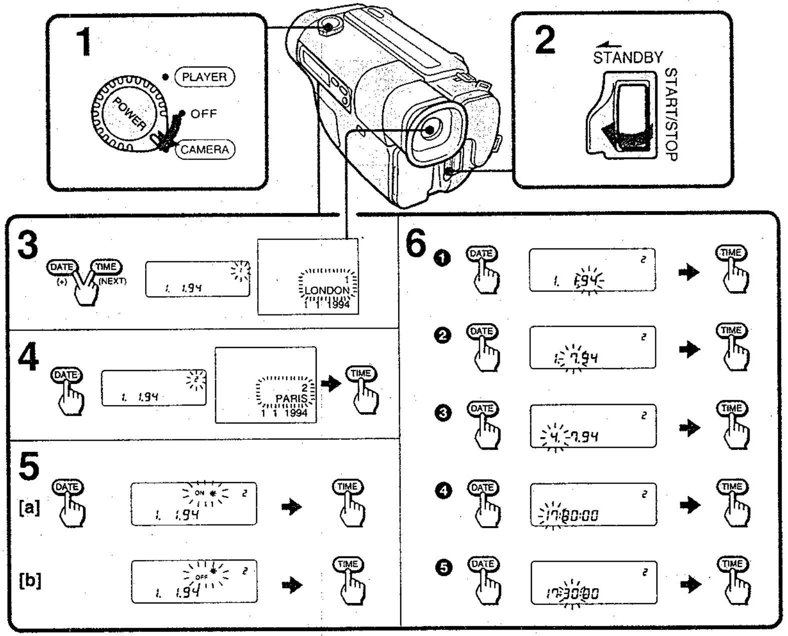
In either cases, **replace the battery with the Sony CR2025 lithium battery. Use of another battery may present a risk of fire or explosion.**





Resetting the Date and Time

Before setting the clock, make sure a power source and lithium battery are installed.
(1) Set the POWER switch to CAMERA. **(2)** Open the STANDBY cover. **(3)** Press DATE (+) and TIME (NEXT) simultaneously untill the area name and number flash in the viewfinder. **(4)** Press DATE (+) to set your home area. **(5)** Set the Time: **[a]** For summer time, press DATE (+) then press TIME (NEXT), **[b]** For standard time, press TIME (NEXT). **(6)** Adjust the flashing digits for the year, month, day and hour by pressing DATE (+) and TIME (NEXT). Note that when you keep DATE (+) pressed, the digits advance faster.



To Correct the Date and Time Setting

Repeat steps 3 to 6.

To Check the Preset Date and Time

Press DATE (+) to display the date indicator in the viewfinder and the display window. Press TIME (NEXT) to display the time indicator. When you press the same button again, the indicator goes out.

To Reset to Standard Time

Change SUMMER TIME mode setting in the menu system (p.33).

Note on the setting of the year
When you set the year, each time you press DATE (+) the digits change as follows.
1994 → 1995 ----→ 2023
↑______________|

Time Zones and Area Numbers and Names

Countries	Area name	Area number
The United Kingdom and Portugal (GMT)	LONDON	1
Other European countries (CET)	PARIS	2
Finland, Greece, etc.	CAIRO	3

Usable Cassettes and Recording/Playback Modes

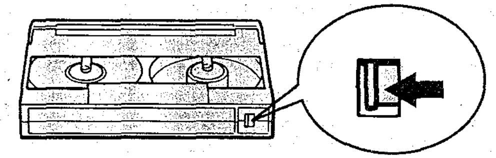
Selecting Cassette Types

This Hi8 system is an extension of the standard 8 mm system, and was developed for higher-quality pictures. You can use Hi8 video and standard 8 mm cassettes. When you want to record in the Hi8 system, use only Hi8 video cassettes. You cannot record on standard 8 mm cassettes in the Hi8 system.
If you are going to play back the tape using a standard 8 mm video recorder/player, you should record the tape in the standard 8 mm system.
If you want to use a Hi8 cassette with the standard 8 mm recording system, set the Hi8 mode to OFF in the menu system before recording (p.33).

To play back in	Record using cassette type	Set Hi8 setting to
Hi8	Hi8	AUTO
Standard 8	Hi8	OFF
	8	AUTO (or OFF)

To Prevent Accidental Erasure

Slide the tab on the cassette to expose the red mark.



If you try to record with the red mark exposed, the ⊠ and ⏏ indicators flash in the viewfinder, and you cannot record on the tape. To re-record on this tape, slide the tab back out to cover the red mark.

When You Play Back

The playback mode is selected automatically according to the recording system (Hi8/standard 8 mm, SP/LP mode) in which the tape was recorded.

Notes on AFM Hi-Fi stereo
When you play back the tape, the sound is in monaural if:
- You record the tape using this camcorder, then play it back on an AFM Hi-Fi monaural video recorder/player.
- You record the tape on an AFM Hi-Fi monaural video recorder, then play it back on this camcorder.

Recording mode
When you play back a tape, the SP/LP indicator in the viewfinder shows the recording mode SP/LP.

Tips for Using the NP-500/500H Battery Pack

Caution
Never leave the battery pack under temperatures above 60°C (140°F), such as in a car parked in the sun or under direct sunlight.

Note on Charging

Recharge the battery pack whenever you like.
You do not have to discharge it before recharging. If you charged the battery pack fully but you did not use it for a long time, it becomes discharged. So recharge the battery pack before use.

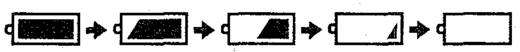
Preparing the Battery Pack

Have sufficient battery pack power to do 2 to 3 times as much recording as you have planned.
"Battery life" is measured by continuous camcorder recording time, at a room temperature using a fully-charged battery. The battery is also expended when:
- You insert or eject a tape.
- The camcorder is set to Standby mode.
- You set the POWER swich to PLAYER.

Battery life is shorter in a cold climate.
Battery efficiency is decreased and the battery wears out more quickly in cold weather (10°C/50°F or less). For longer battery life, we recommend the following:
- Keep the battery pack warm until you're ready to start using the camcorder.
- Charge the battery using the AC power adaptor at room temperature (from 10°C/50°F to 30°C/86°F).

Battery Remaining Indicator

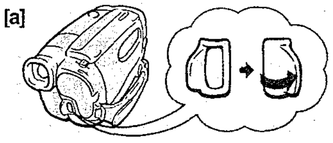
You can check the remaining battery by looking at the ▬ indicator in the viewfinder. The decreasing black bar indicates decresing battery power.



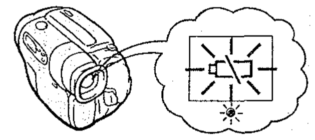
To save battery power close the STANDBY cover when not recording.
A smooth recording can be made even if recording is stopped and started again.**[a]**

When to Replace the Battery Pack
You can check the remaining battery capacity by looking at the battery remaining indicator in the viewfinder. When the ▭ indicator and the battery lamp in the viewfinder change from slow to rapid flashing, set the POWER switch to OFF, and replace the battery pack. Leave the tape in the camcorder in order to obtain a smooth transition when you begin recording again. **[b]**

[a]



[b]



Note on the Terminals

If the terminals (metal parts in the terminal holes) are not clean, the battery duration will be shortened. When the terminals are not clean or when the battery pack has not been used for a long time, repeat installing and removing the battery pack. This improves the contact condition. Also, remove any accumulated dust in the terminal holes fully by using a pointed stick which is not so hard.

Tips for Using the NP-500/500H Battery Pack

Be sure to observe the following
- **Use only the specified charger.**
- **To prevent an accident caused by a short circuit, do not allow metal objects such as a necklace to touch the battery terminals.**
- When carrying or storing the battery pack, attach it to the video equipment or use the terminal cover which is only supplied to the battery pack sold separately.
- Keep the battery pack away from fire.
- Keep the battery pack dry.
- Do not open nor convert the battery pack.
- Do not expose the battery pack to any mechanical shock.

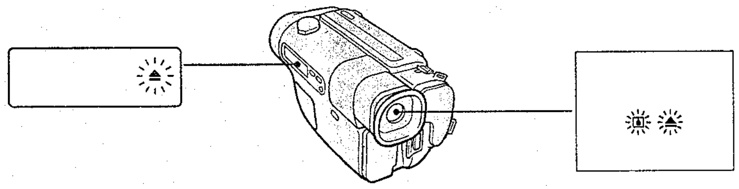
Maintenance Information and Precautions

Moisture Condensation

If the camcorder is brought directly from a cold place to a warm place, moisture may condense inside the camcorder, on the surface of the tape, or on the lens. If this happens, the tape may stick to the head drum and be damaged or the camcorder may not operate correctly. To prevent possible damage under these circumstances, the camcorder is furnished with moisture sensors. However, take the following precautions.

Inside the Camcorder

When ▣ and ⏏ indicators flash in the viewfinder and the display window, moisture has condensed inside the camcorder. If this happens, none of the functions except cassette ejection will work.
Eject the tape, turn off the camcorder, and leave it with the cassette compartment open for about 1 hour.
If the ▣ indicator does not light up when you turn on the power, you can use the camcorder again .



On the Surface of the Tape

If there is moisture on the surface of the tape, when you insert tape and press a tape transport button, the ⏏ indicator flashes in the viewfinder and the display window. If this happens, none of the functions except cassette ejection will work.
Eject the tape and let it sit for about 1 hour.
If the ⏏ indicator does not light up when you insert the tape and press a tape transport button, you can use the camcorder again .

On the Lens

No indicator will appear, but the picture becomes dim. Turn off the power and do not use the camcorder for about 1 hour.

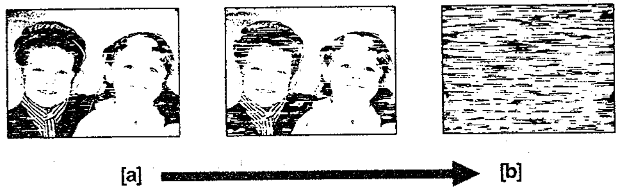
Maintenance Information and Precautions

How to Prevent Moisture Condensation

When bringing the camcorder from a cold place to a warm place, put the camcorder in a plastic bag and allow it to adapt to room conditions over a period of time.
(1) Be sure to tightly seal the plastic bag containing the camcorder.
(2) Remove the bag when the air temperature inside it has reached the temperature surrounding it (after about one hour).

Video Head Cleaning

To ensure clear pictures, clean the video heads periodically. When playback pictures are "noisy" or hardly visible, the video heads may be contaminated.



[a] Slight contamination
[b] Critical contamination
If this happens, clean the video heads with the Sony V8-25CLH cleaning cassette (not supplied). After checking the picture, if it is still "noisy", repeat the cleaning. (Do not repeat cleaning more than 5 times.)

Caution
Do not use a commercially available wet-type cleaning cassette. It may damage the video heads.

Note
If the V8-25CLH cleaning cassette is not available in your area, consult your Sony service facility.

Precautions

Camcorder Operation

- Operate the camcorder using 7.2 V (battery pack), or 6.5 V (AC power adaptor).
- For DC or AC operation, use only the accessories recommended in this manual.
- Should any solid object or liquid fall into the casing, unplug the camcorder and have it checked by qualified personnel before operating it any further.
- Avoid rough handling or mechanical shock. Be particularly careful of the lens.
- Keep the POWER switch set to OFF when not using the camera.
- Do not wrap up the camcorder and operate it since heat may build up internally.
- Keep the camcorder away from strong magnetic fields or mechanical vibration.

On Handling Tapes

Do not insert anything into the small holes on the rear of the cassette. These holes are used to sense the type, thickness of tape, or if the tab is out or in.

Camcorder Care

- When the camcorder is not to be used for a long time, disconnect the power source and remove the tape. Periodically turn on the power, operate the camera and player sections and play back a tape for about 3 minutes.
- Clean the lens with a soft brush to remove dust. If there are fingerprints on the lens, remove them with a soft cloth.
- Clean the camcorder body with a soft dry cloth, or a soft cloth lightly moistened with a mild detergent solution. Do not use any type of solvent which may damage the finish.

Maintenance Information and Precautions

AC Power Adaptor

Charging
- Use only for the specified battery pack. This unit cannot be used to charge an NP-55/66/77 series battery pack.
- Attach the battery pack firmly.
- Charge the battery pack on a flat surface without vibration.

Charging temperature
The temperature range for charging is 0°C to 40°C (32°F to 104°F). However, to provide maximum battery efficiency, the recommended temperature range when charging is 10°C to 30°C (50°F to 86°F).

Others
- The nameplate indicating operating voltage, power consumption, etc. is located on the bottom.
- The negligible amount of electric current will flow into the AC power adaptor as long as the AC power adaptor is plugged into the wall outlet.
- Unplug the unit from the wall outlet if it will not be used for extended period of time.
- To disconnect the cord (mains lead), pull it out by the plug. Never pull the cord itself.
- Do not operate the unit with a damaged cord or if the unit has been dropped or damaged.
- Be sure that nothing metallic comes into contact with the metal parts of the unit or connecting plate. If it does, a short may occur and the unit may be damaged.
- Always keep the metal contacts clean.
- Do not disassemble or convert the unit.
- Do not apply mechanical shock or drop the unit.
- While the unit is in use, it gets warm. But this is normal.
- Keep the unit away from AM receivers, because it will disturb AM reception.
- Do not place the unit in a location where it is:
  - – Extremely hot or cold
  - – Dusty or dirty
  - – Very humid
  - – Vibrating

Handycam Station
- The nameplate indicating operating voltage, power consumption, etc. is located on the bottom.
- The negligible amount of electric current will flow into the Handycam Station as long as the Handycam Station is plugged into the wall outlet.
- Unplug the unit from the wall outlet if it will not be used for extended period of time. To disconnect the cord (mains lead), pull it out by the plug. Never pull the cord itself.
- Do not operate the unit with a damaged cord or if it has been dropped or damaged.
- Be sure that nothing metallic comes into contact with the metal parts covered with the terminal shutter on the camcorder mounting surface. If it does, a short may occur and the unit may be damaged.
- Always keep the metal contacts clean.
- Do not disassemble or convert the unit.
- Do not apply mechanical shock or drop the unit.
- While the unit is in use, it gets warm. But this is normal.
- Keep the unit away from AM receivers, because it will disturb AM reception.
- Do not place the unit in a location where it is:
  - – Extremely hot or cold
  - – Dusty or dirty
  - – Very humid
  - – Vibrating

If any difficulty should arise, unplug the unit and contact your nearest Sony dealer.

Using Your Camcorder Abroad

Each country has its own electricity and TV colour systems. Before using your camcorder abroad, check the following points:

Power Sources

You can use your camcorder in any country with the supplied AC power adaptor and Handycam Station within 100 V to 240 V AC, 50/60 Hz.

Difference in Colour Systems

This camcorder is a PAL system-based camcorder. If you want to view the playback picture on a TV, it must be a PAL system based TV. Check the following alphabetical list.

PAL system countries
Australia, Austria, Belgium, China, Denmark, Finland, Germany (former West Germany), Great Britain, Holland, Hong Kong, Italy, Kuwait, Malaysia, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, Thailand, etc.

PAL M system country
Brazil

PAL N system countries
Argentina, Paraguay, Uruguay

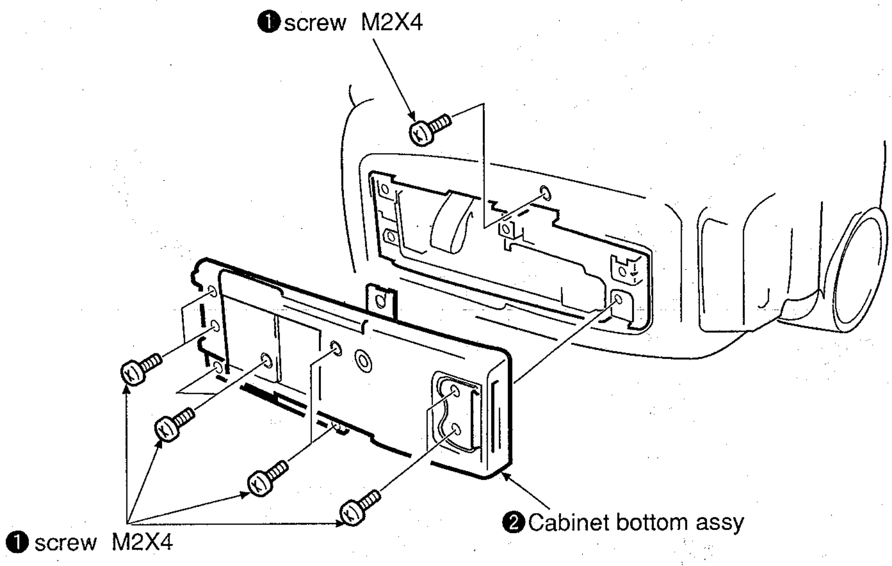
NTSC system countries
Bahama Islands, Bolivia, Canada, Central America, Chile, Colombia, Ecuador, Jamaica, Japan, Korea, Mexico, Peru, Surinam, Taiwan, the Philippines, the U.S.A., Venezuela, etc.

SECAM system countries
Bulgaria, France, Guyana, Hungary, Iran, Iraq, Monaco, Poland, former Soviet Union, etc.

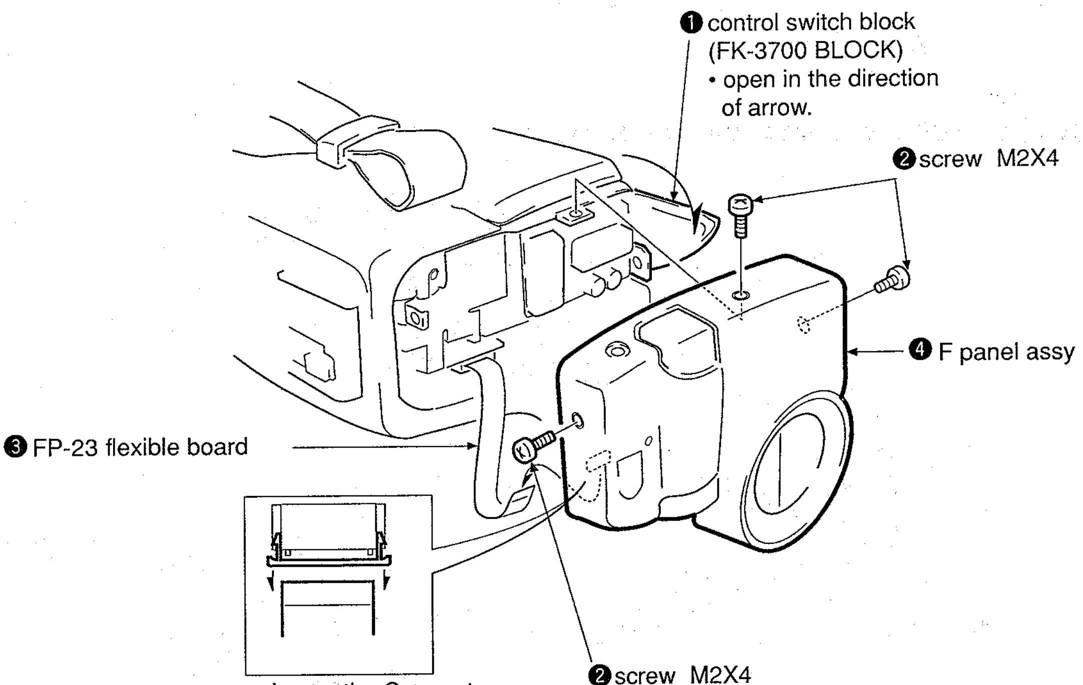
SECTION 2
DISASSEMBLY

NOTE : Follow the disassembly procedure in the numerical order given.

2-1. REMOVAL OF CABINET BUTTOM ASSY


❶screw M2X4
❶ screw M2X4
❷Cabinet bottom assy

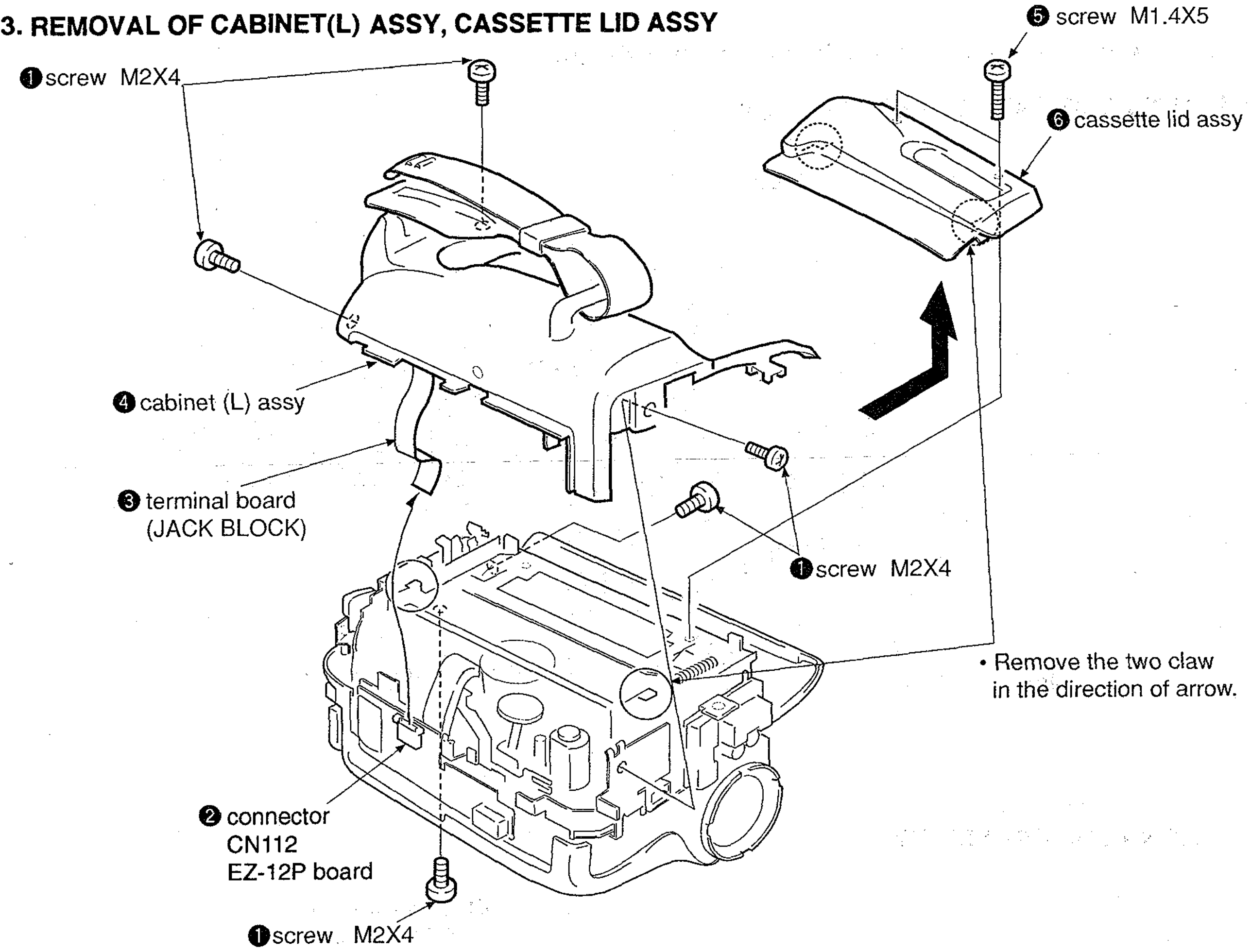
2-2. REMOVAL OF F PANEL ASSY


❶ control switch block
(FK-3700 BLOCK)
❷screw M2X4
❹ F panel assy
❸ FP-23 flexible board
❷screw M2X4

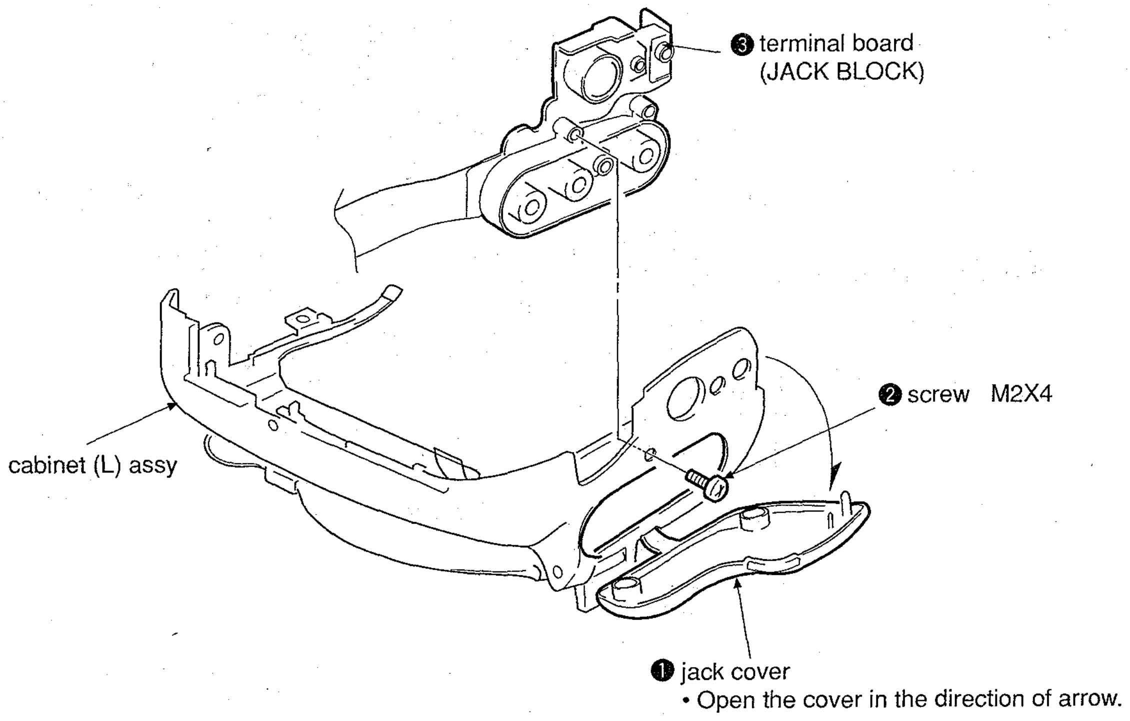
• open in the direction of arrow.

• Lower the Connector in the arrow direction and remove the flexible board.

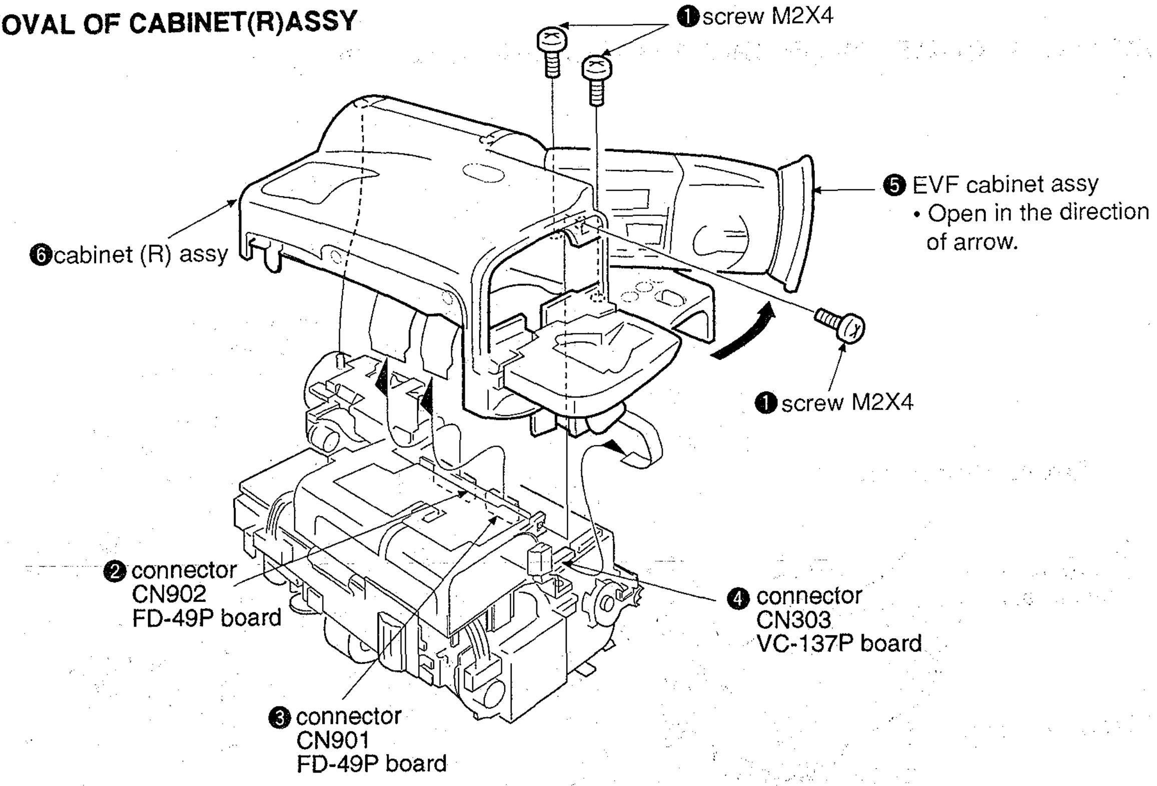
2-3. REMOVAL OF CABINET(L) ASSY, CASSETTE LID ASSY


❶screw M2X4
❺ screw M1.4X5
❻ cassette lid assy
❹ cabinet (L) assy
❸ terminal board
(JACK BLOCK)
❶screw M2X4
• Remove the two claw
in the direction of arrow.
❷ connector
CN112
EZ-12P board
❶screw M2X4

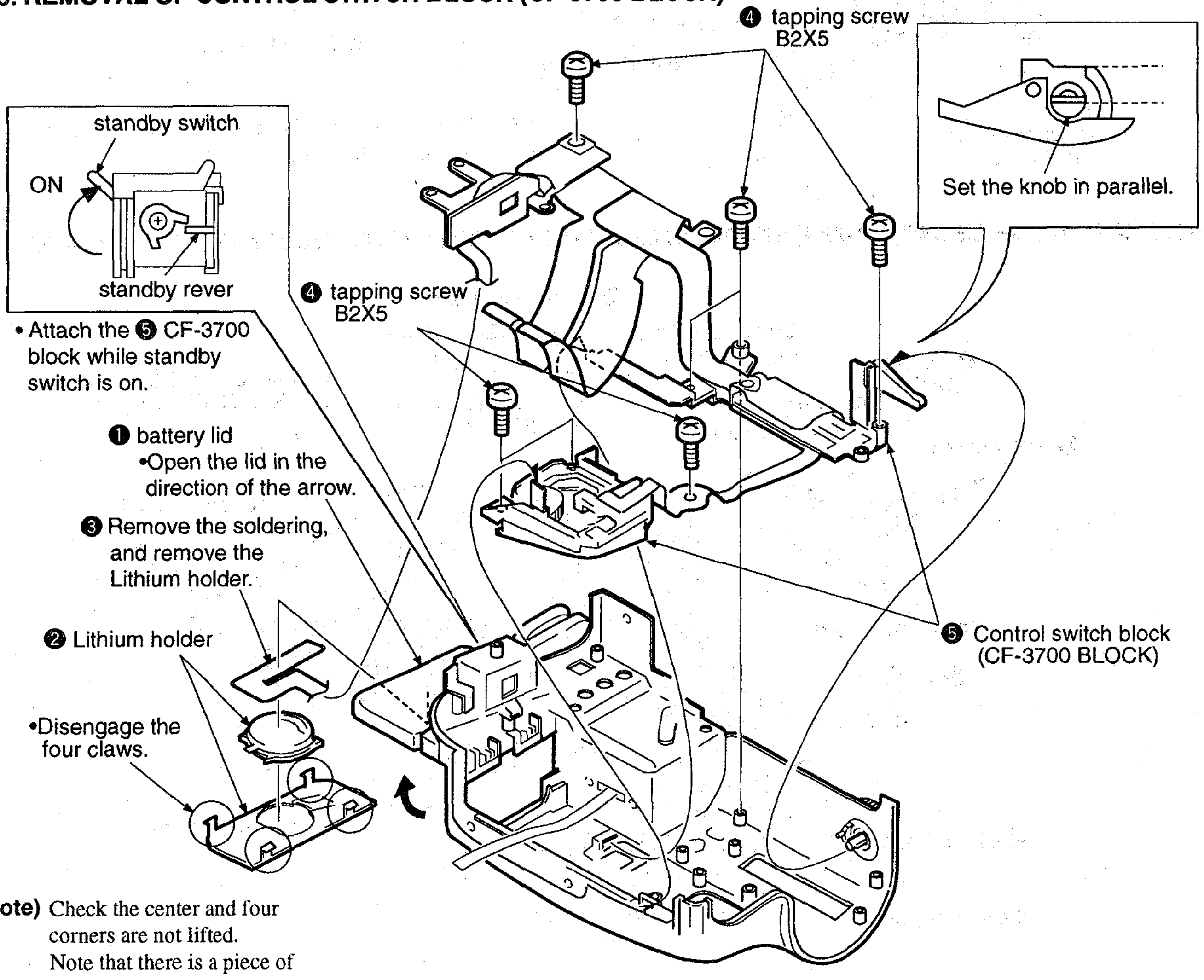
2-4. REMOVAL OF TERMINAL BOARD (JACK BLOCK)


❸ terminal board
(JACK BLOCK)
❷ screw M2X4
cabinet (L) assy
❶ jack cover
• Open the cover in the direction of arrow.

2-5. REMOVAL OF CABINET(R)ASSY

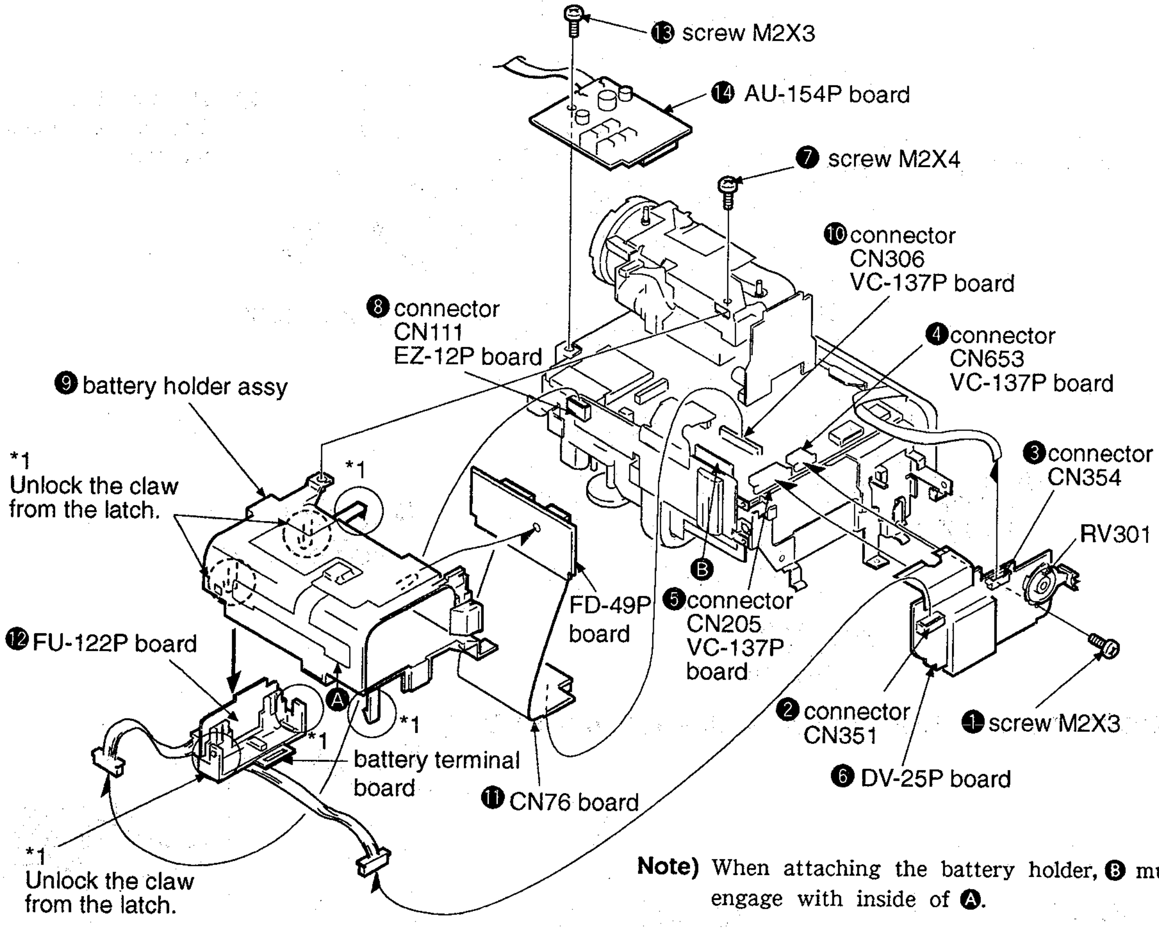

❶screw M2X4
❺ EVF cabinet assy
• Open in the direction of arrow.
❻cabinet (R) assy
❶screw M2X4
❷ connector CN902 FD-49P board
❹ connector CN303 VC-137P board
❸ connector CN901 FD-49P board

2-6. REMOVAL OF CONTROL SWITCH BLOCK (CF-3700 BLOCK)


❹ tapping screw B2X5
Set the knob in parallel.
standby switch
ON
standby rever
❹ tapping screw B2X5
• Attach the ❺ CF-3700 block while standby switch is on.
❶ battery lid
•Open the lid in the direction of the arrow.
❸ Remove the soldering, and remove the Lithium holder.
❷ Lithium holder
•Disengage the four claws.
❺ Control switch block (CF-3700 BLOCK)

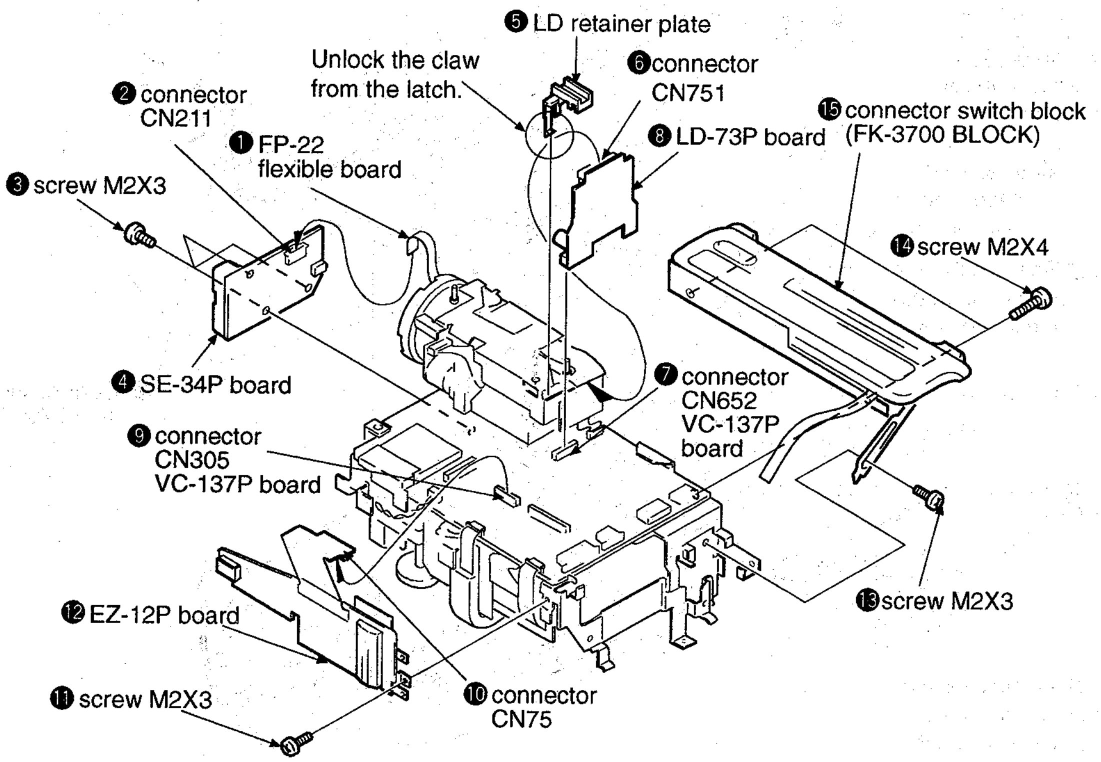
Note) Check the center and four corners are not lifted.
Note that there is a piece of a both-sided adhensive tape in the center.
Take care when removing.

2-7. REMOVAL OF DV-25P, FD-49P, CN-87P, FU-122P, AU-154P BOARD


⑬ screw M2X3
⑭ AU-154P board
⑦ screw M2X4
⑩ connector
CN306
VC-137P board
⑧ connector
CN111
EZ-12P board
④ connector
CN653
VC-137P board
⑨ battery holder assy
*1
Unlock the claw
from the latch.
*1
③ connector
CN354
RV301
Ⓑ
⑤ connector
CN205
VC-137P
board
FD-49P
board
⑫ FU-122P board
Ⓐ
*1
*1
battery terminal
board
⑪ CN76 board
② connector
CN351
① screw M2X3
⑥ DV-25P board
*1
Unlock the claw
from the latch.

Note) When attaching the battery holder, Ⓑ must engage with inside of Ⓐ.

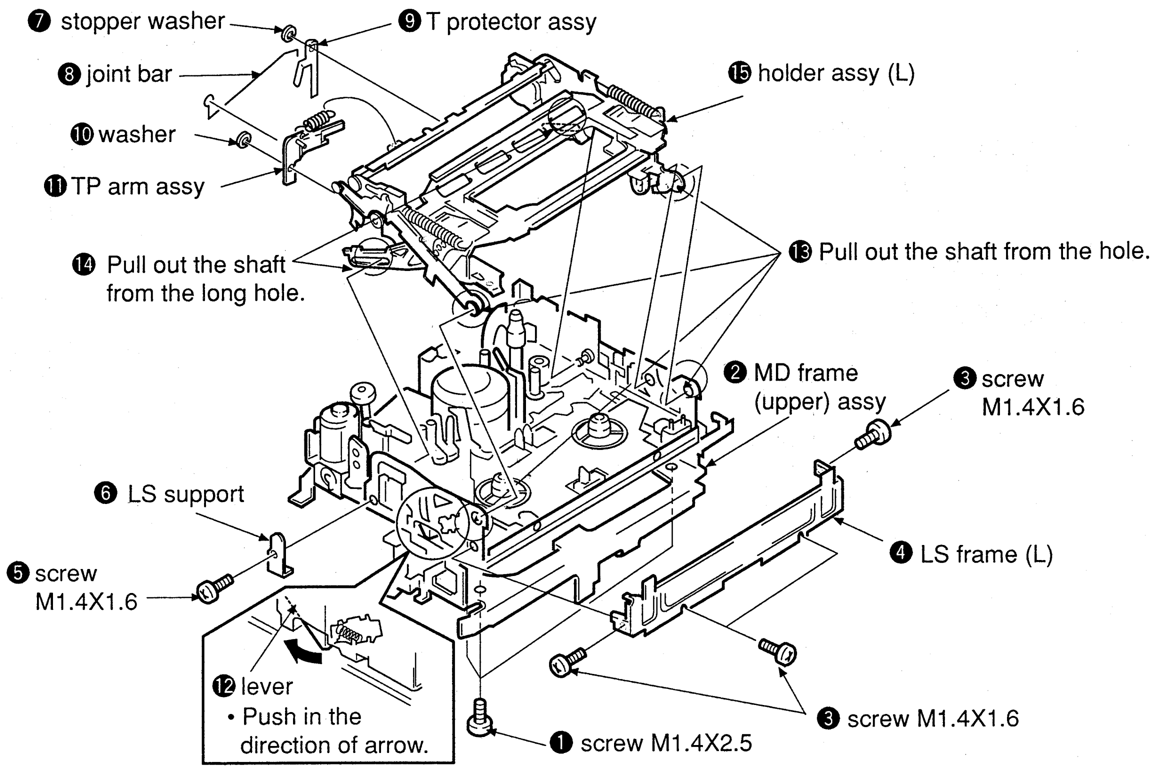
2-8. REMOVAL OF SE-34P, LD-73P, EZ-12P BOARD, CONNECTOR SWITCH BLOCK (FK-3700 BLOCK)


⑤ LD retainer plate
Unlock the claw
from the latch.
⑥ connector
CN751
② connector
CN211
⑮ connector switch block
(FK-3700 BLOCK)
① FP-22
flexible board
⑧ LD-73P board
③ screw M2X3
⑭ screw M2X4
④ SE-34P board
⑦ connector
CN652
VC-137P
board
⑨ connector
CN305
VC-137P board
⑫ EZ-12P board
⑬ screw M2X3
⑪ screw M2X3
⑩ connector
CN75

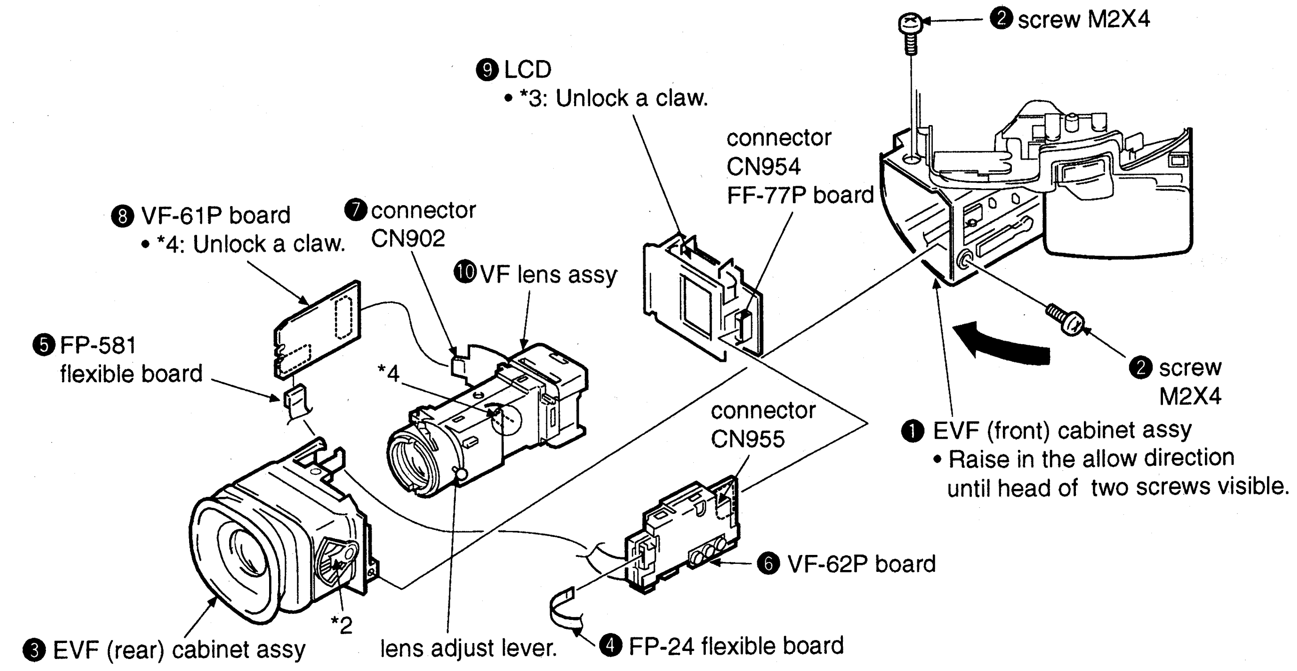
2-9. REMOVAL OF HOLDER ASSY

In the begining, set to USE mode.

(When setting to USE mode, see "2-4. Handling of Mode Selector" in "8 mm video mechanical adjustment manual II FL Mechanism(Q mechanism)".)

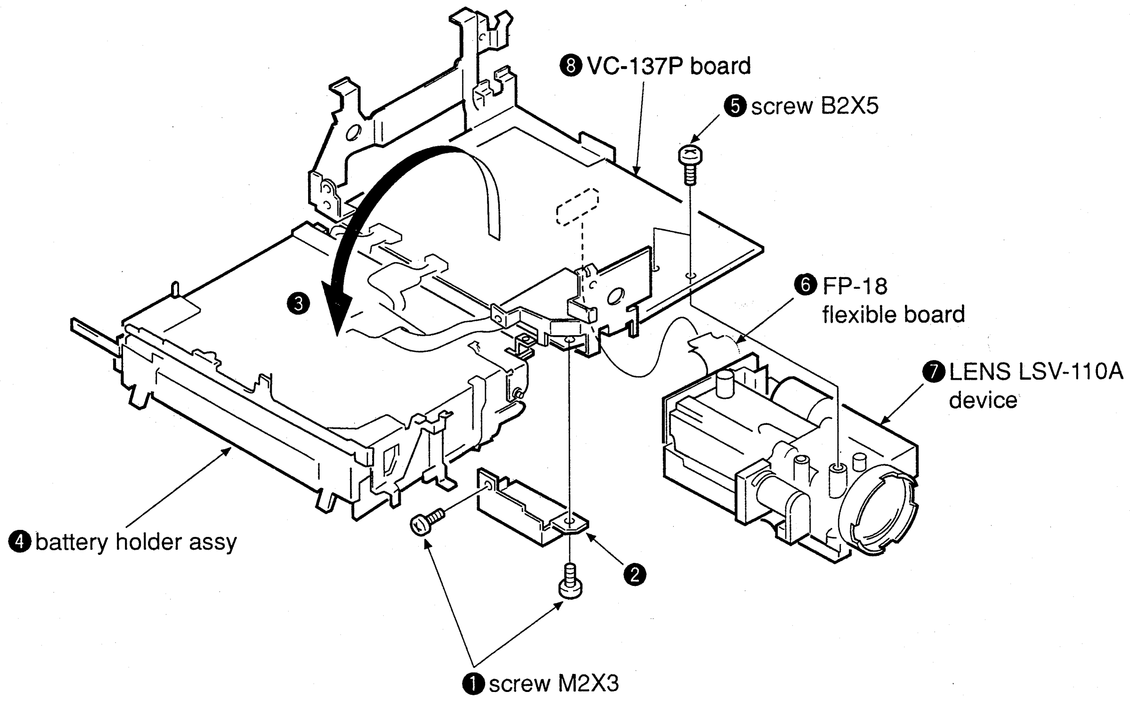

⑦ stopper washer
⑨ T protector assy
⑧ joint bar
⑮ holder assy (L)
⑩ washer
⑪ TP arm assy
⑭ Pull out the shaft from the long hole.
⑬ Pull out the shaft from the hole.
② MD frame (upper) assy
③ screw M1.4X1.6
⑥ LS support
④ LS frame (L)
⑤ screw M1.4X1.6
⑫ lever
• Push in the direction of arrow.
① screw M1.4X2.5
③ screw M1.4X1.6

2-10. REMOVAL OF EVF CABINET ASSY, VF-61P/62P BOARD, LCD, VF LENS ASSY


② screw M2X4
⑨ LCD
• *3: Unlock a claw.
connector CN954
FF-77P board
⑧ VF-61P board
• *4: Unlock a claw.
⑦ connector CN902
⑩ VF lens assy
⑤ FP-581 flexible board
*4
② screw M2X4
connector CN955
① EVF (front) cabinet assy
• Raise in the allow direction until head of two screws visible.
⑥ VF-62P board
③ EVF (rear) cabinet assy
*2
lens adjust lever.
④ FP-24 flexible board

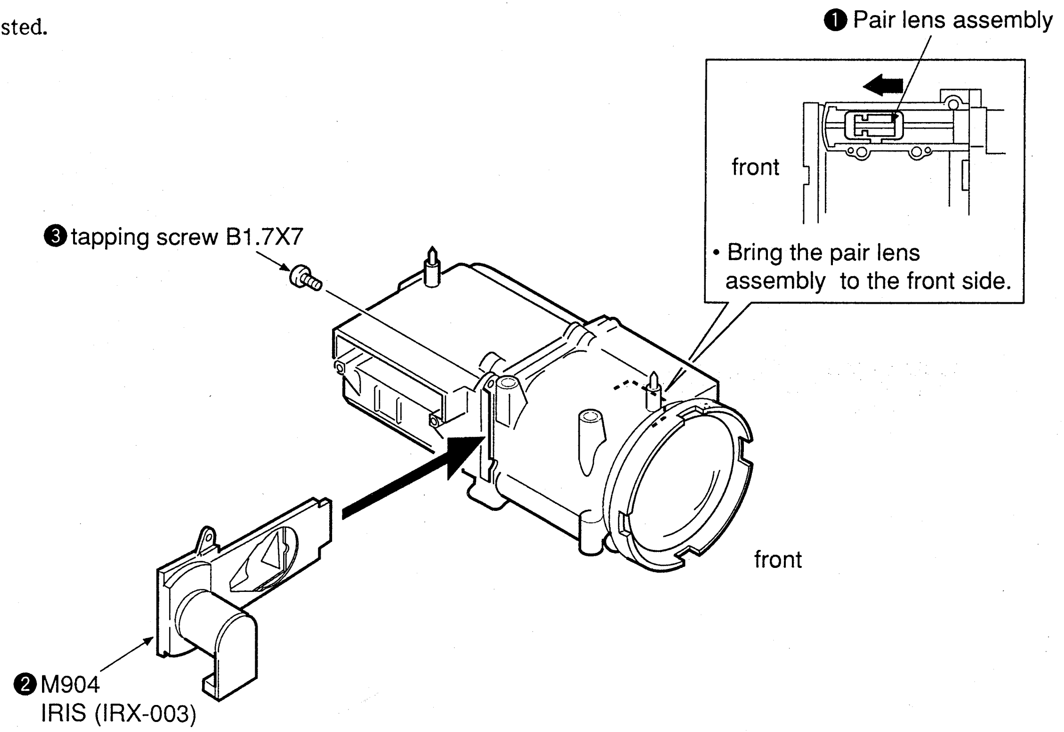
*2 : **Note)** When attaching, find a correct position to set the lens adjust lever is engaged.

2-11. REMOVAL OF LENS LSV-110A DEVICE


⑧ VC-137P board
⑤ screw B2X5
③
⑥ FP-18 flexible board
⑦ LENS LSV-110A device
④ battery holder assy
②
① screw M2X3

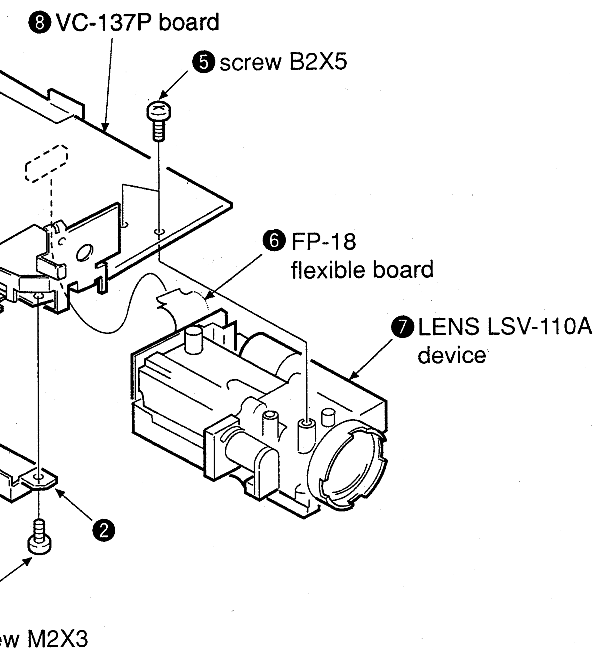
2-12. MOUNTING OF M904 IRIS(IRX-003)

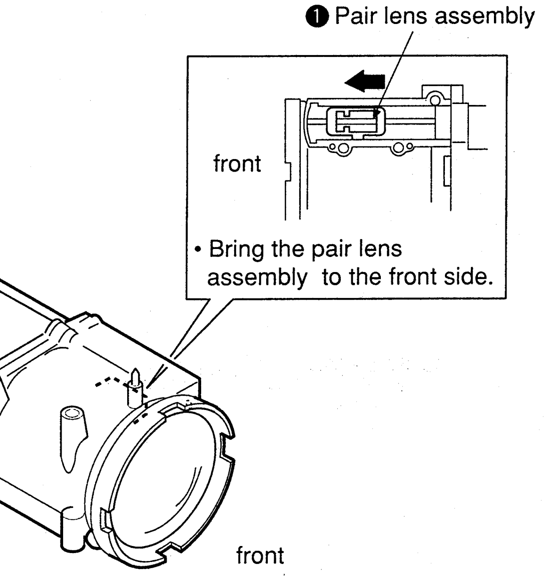
Note) When replacing the lens or its component parts (motor, iris, etc.), the iris and flange back must be adjusted.


① Pair lens assembly
front
• Bring the pair lens assembly to the front side.
③ tapping screw B1.7X7
front
② M904 IRIS (IRX-003)

2-13. MOUNTI

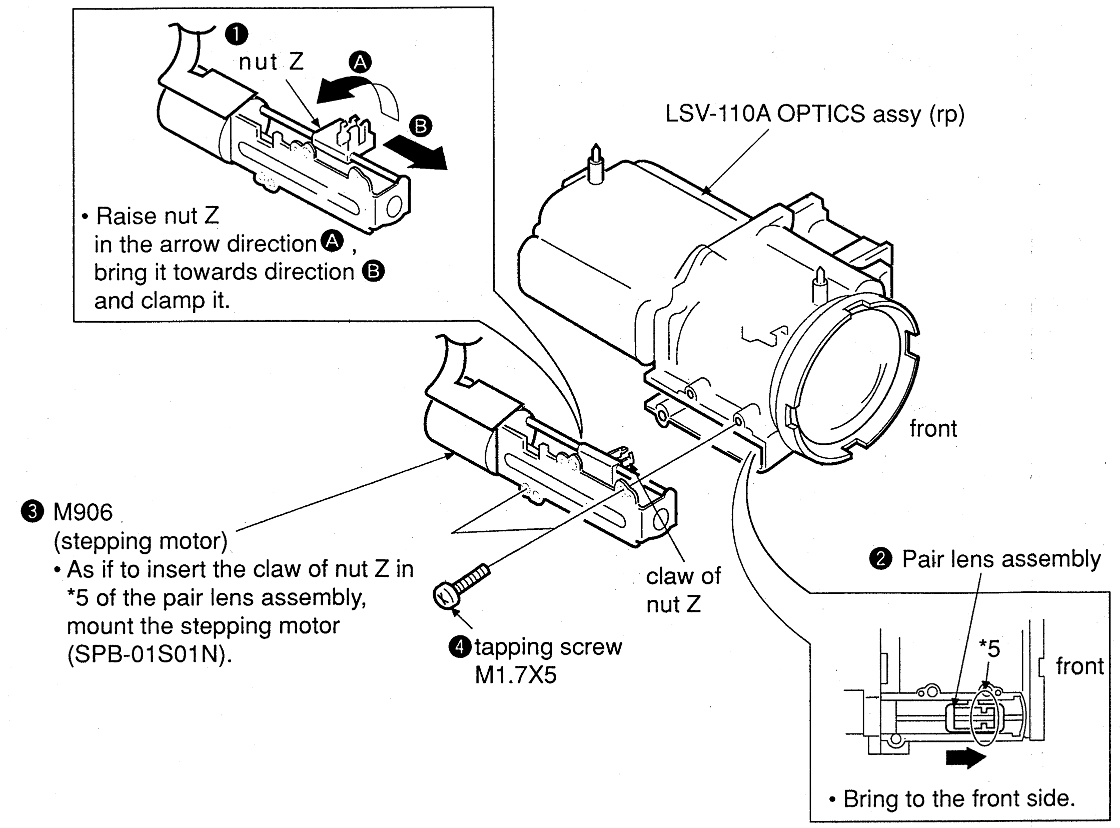
2-14. MOUNTI


❽ VC-137P board
❺ screw B2X5
❻ FP-18 flexible board
❼ LENS LSV-110A device
❷
w M2X3


❶ Pair lens assembly
front
front

• Bring the pair lens assembly to the front side.

2-13. MOUNTING OF STEPPING MOTOR (SPB-01S01N)

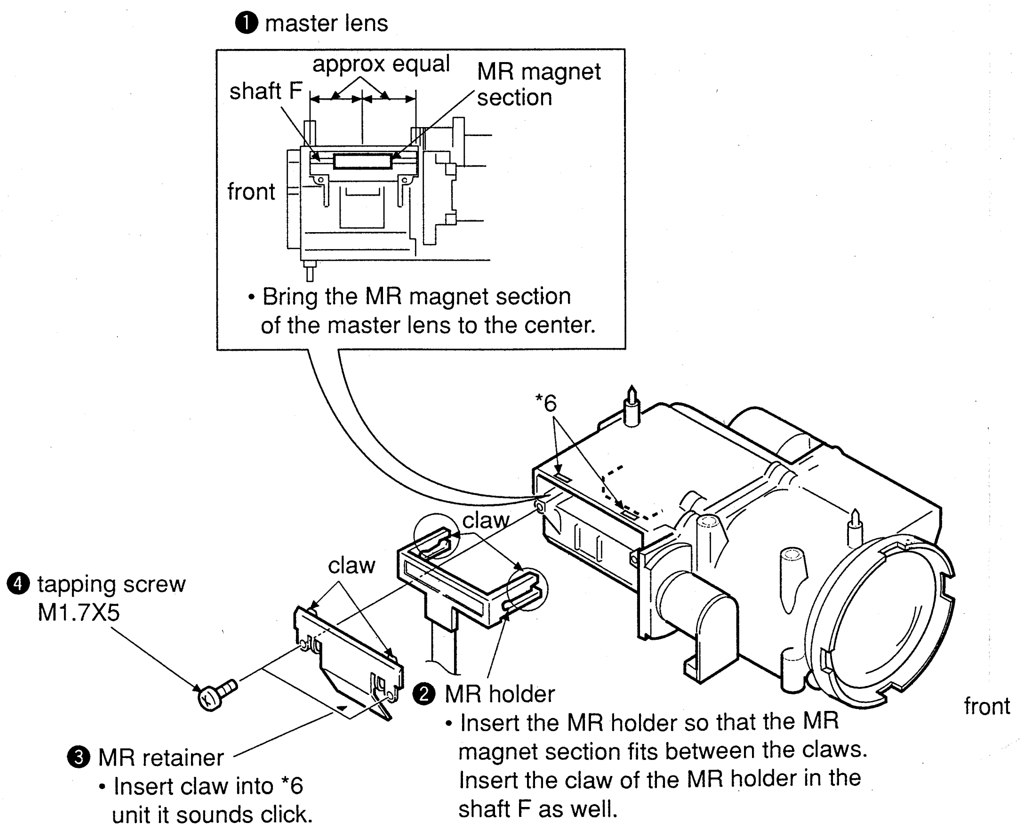

❶
nut Z
Ⓐ
Ⓑ
LSV-110A OPTICS assy (rp)
front
❸ M906 (stepping motor)
claw of nut Z
❹ tapping screw M1.7X5
❷ Pair lens assembly
*5
front

• Raise nut Z in the arrow direction Ⓐ, bring it towards direction Ⓑ and clamp it.

• As if to insert the claw of nut Z in *5 of the pair lens assembly, mount the stepping motor (SPB-01S01N).

• Bring to the front side.

2-14. MOUNTING OF MR SENSOR SECTION


❶ master lens
approx equal
shaft F
MR magnet section
front
*6
claw
claw
❹ tapping screw M1.7X5
❸ MR retainer
❷ MR holder
front

• Bring the MR magnet section of the master lens to the center.

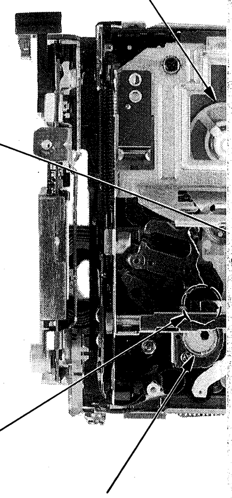
• Insert claw into *6 unit it sounds click.

• Insert the MR holder so that the MR magnet section fits between the claws. Insert the claw of the MR holder in the shaft F as well.

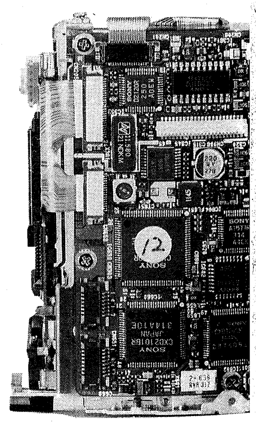
2-15.INTERNAL VIEWS

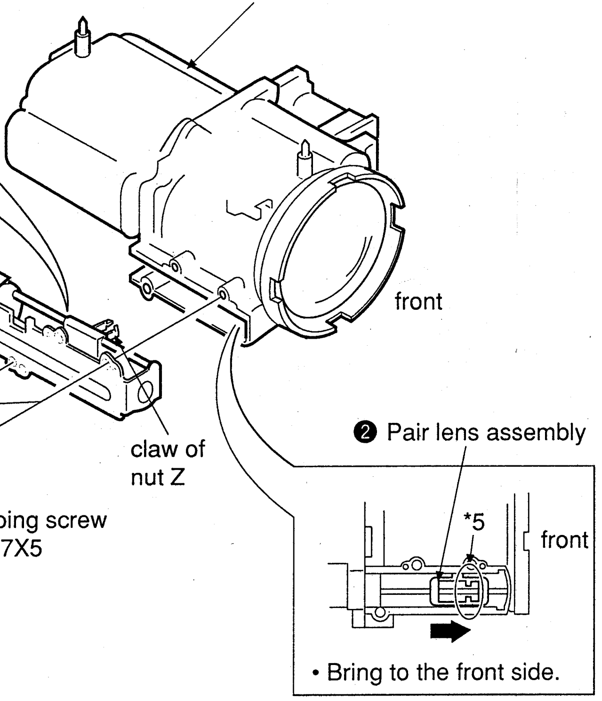
– Left side –

M901
Drum block assy (DGH-80B-R)
A-7048-660-A
Upper rotary drum assy (DGH-80-R (1))
(color mark : GREEN, GREEN/RED, BLACK, BLACK/RED)
A-7049-461-A
Upper rotary drum assy (DGH-80-R (2))
(Color mark : RED, RED/RED, BLUE, BLUE/RED)
A-7049-464-A

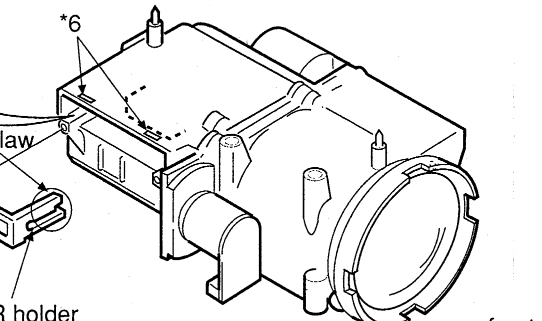

Take-up reel table assy
X-3727-951-2
Pinch roller
M902
Capstan motor
(U-21A)
8-835-329-12

– Right side –




LSV-110A OPTICS assy (rp)
front
claw of
nut Z
ping screw
7X5
❷ Pair lens assembly
*5
front
• Bring to the front side.

MR magnet
section
–
–
–
–
et section
the center.

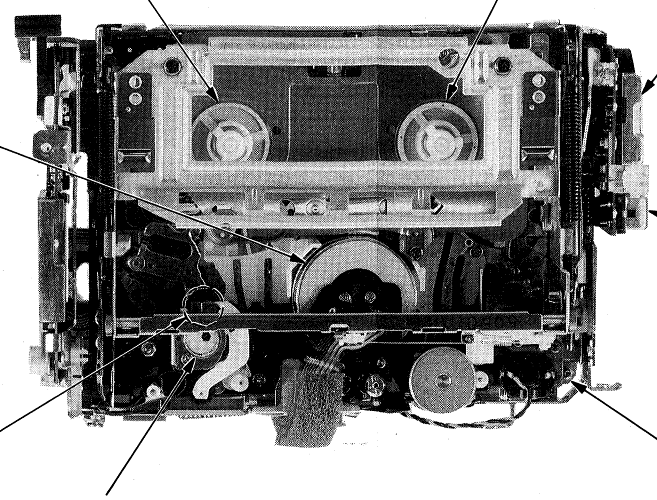


R holder
sert the MR holder so that the MR
agnet section fits between the claws.
sert the claw of the MR holder in the
aft F as well.

2-15.INTERNAL VIEWS

– Left side –

M901
Drum block assy (DGH-80B-R)
A-7048-660-A
Upper rotary drum assy (DGH-80-R (1))
(color mark : GREEN, GREEN/RED, BLACK, BLACK/RED)
A-7049-461-A
Upper rotary drum assy (DGH-80-R (2))
(Color mark : RED, RED/RED, BLUE, BLUE/RED)
A-7049-464-A



Take-up reel table assy
X-3727-951-2

Supply reel table assy
X-3727-952-1

SE002
Angular velocity
1-810-024-41

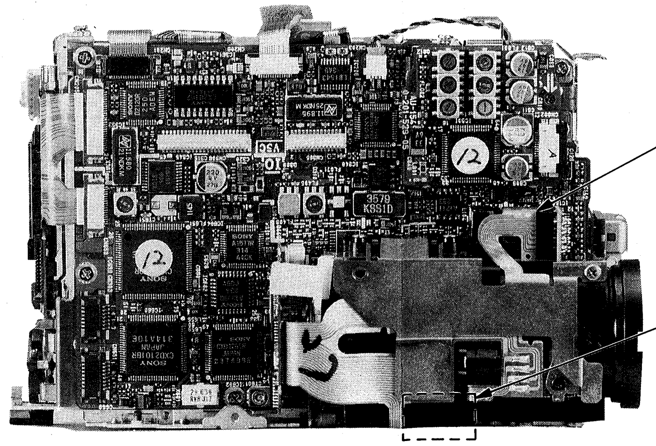
SE001
Angular velocity
1-810-024-31

Pinch roller

M902
Capstan motor
(U-21A)
8-835-329-12

M903
Loading motor
(LA12G-344VA)
1-541-607-21

– Right side –

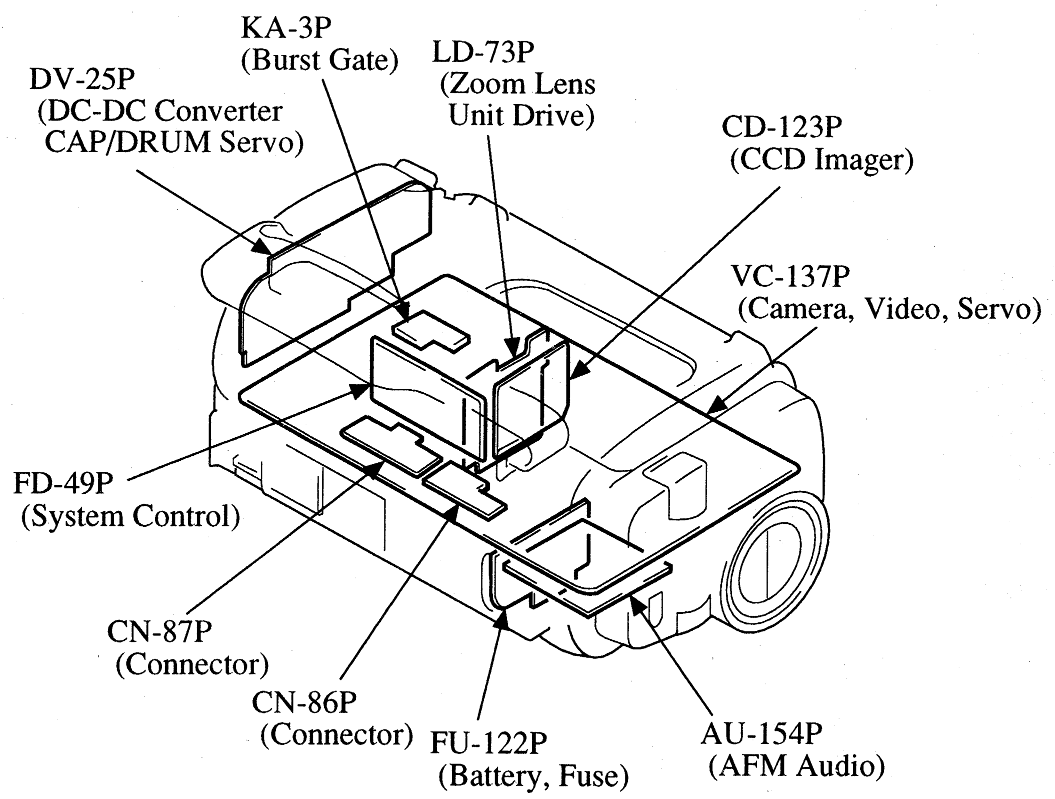


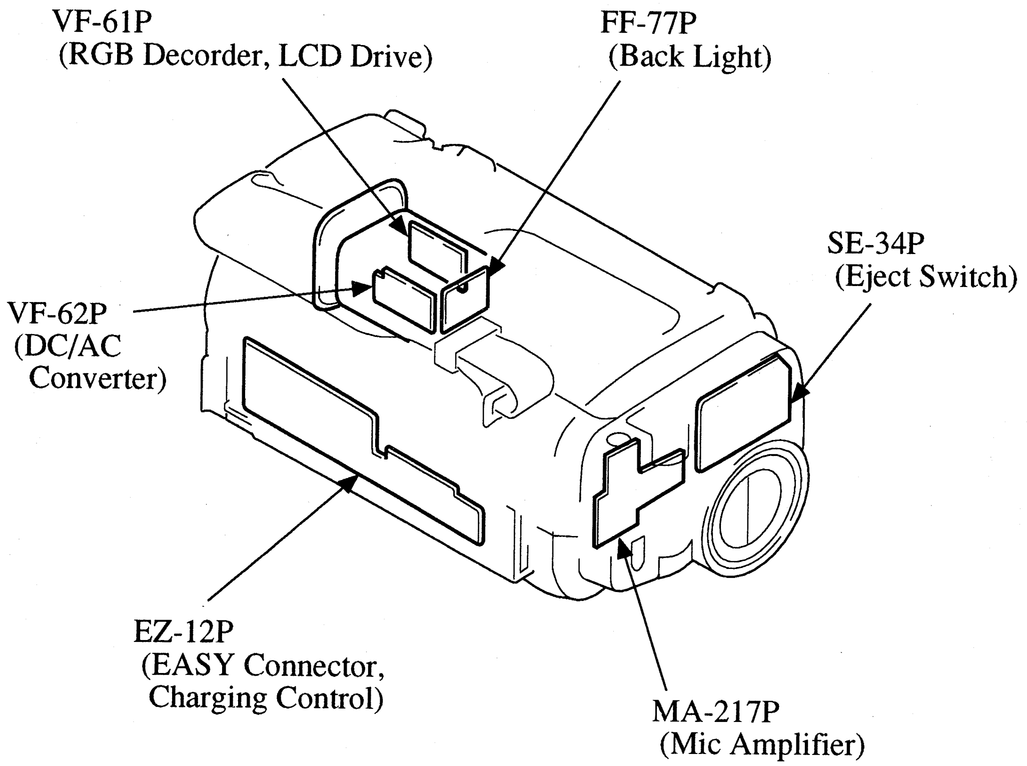
M904
Iris
(IRX-003)
1-547-655-11

M906
Zoom motor
(SPB-01S01N)
8-835-491-02

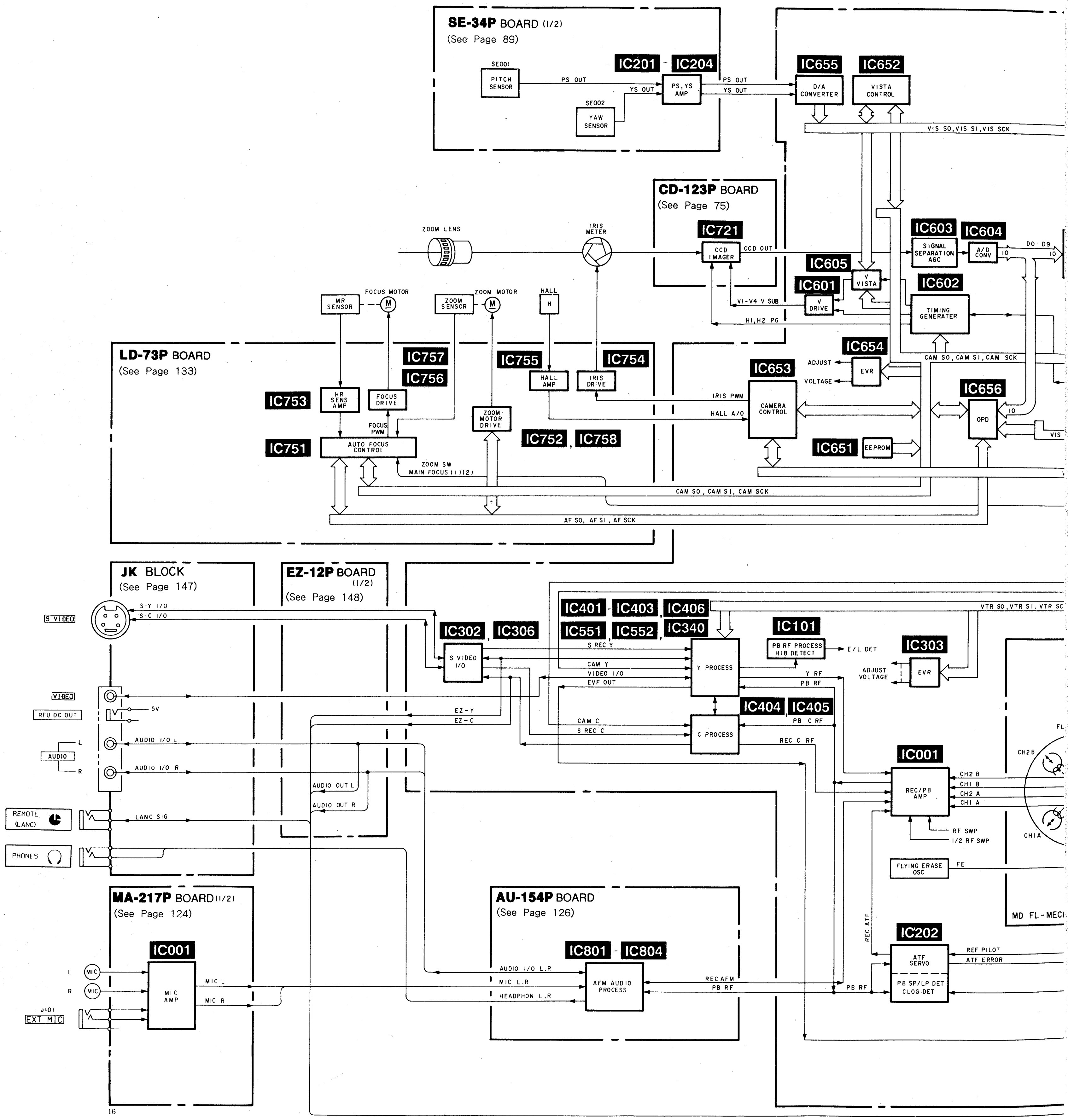
SECTION 3
DIAGRAMS

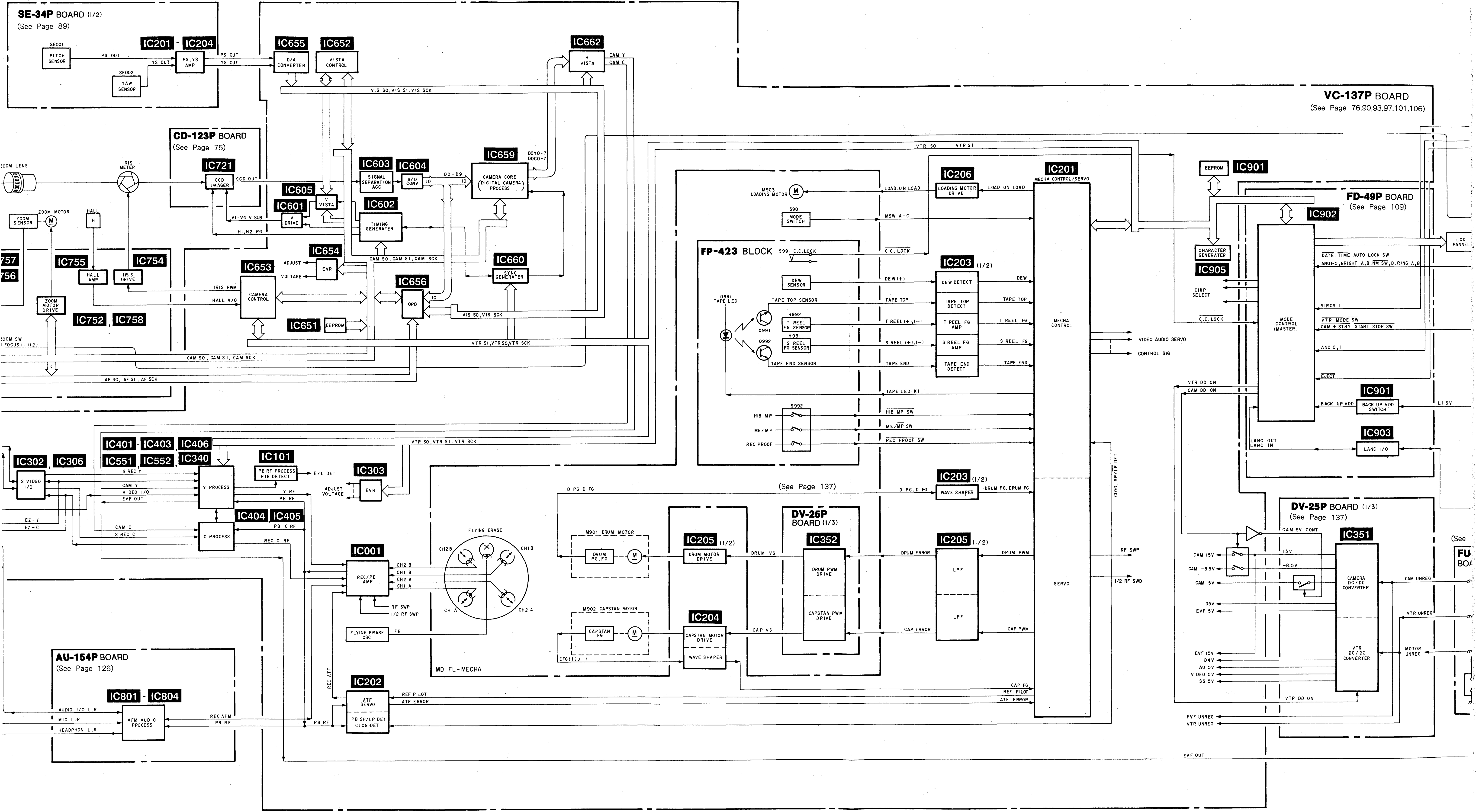
3-1. CIRCUIT BOARDS LOCATION

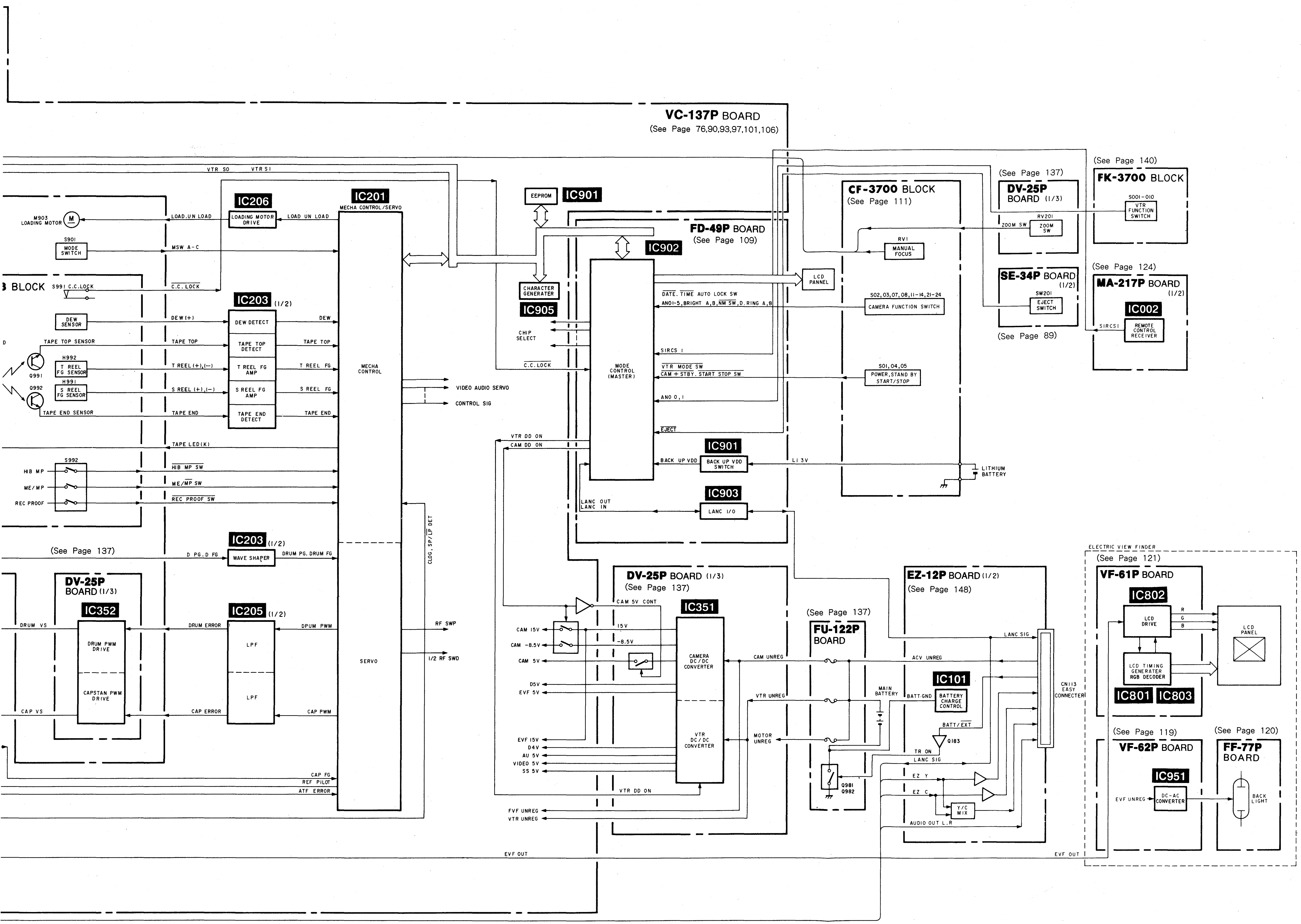

KA-3P
(Burst Gate)
DV-25P
(DC-DC Converter
CAP/DRUM Servo)
LD-73P
(Zoom Lens
Unit Drive)
CD-123P
(CCD Imager)
VC-137P
(Camera, Video, Servo)
FD-49P
(System Control)
CN-87P
(Connector)
CN-86P
(Connector)
FU-122P
(Battery, Fuse)
AU-154P
(AFM Audio)


VF-61P
(RGB Decorder, LCD Drive)
FF-77P
(Back Light)
VF-62P
(DC/AC
Converter)
SE-34P
(Eject Switch)
EZ-12P
(EASY Connector,
Charging Control)
MA-217P
(Mic Amplifier)

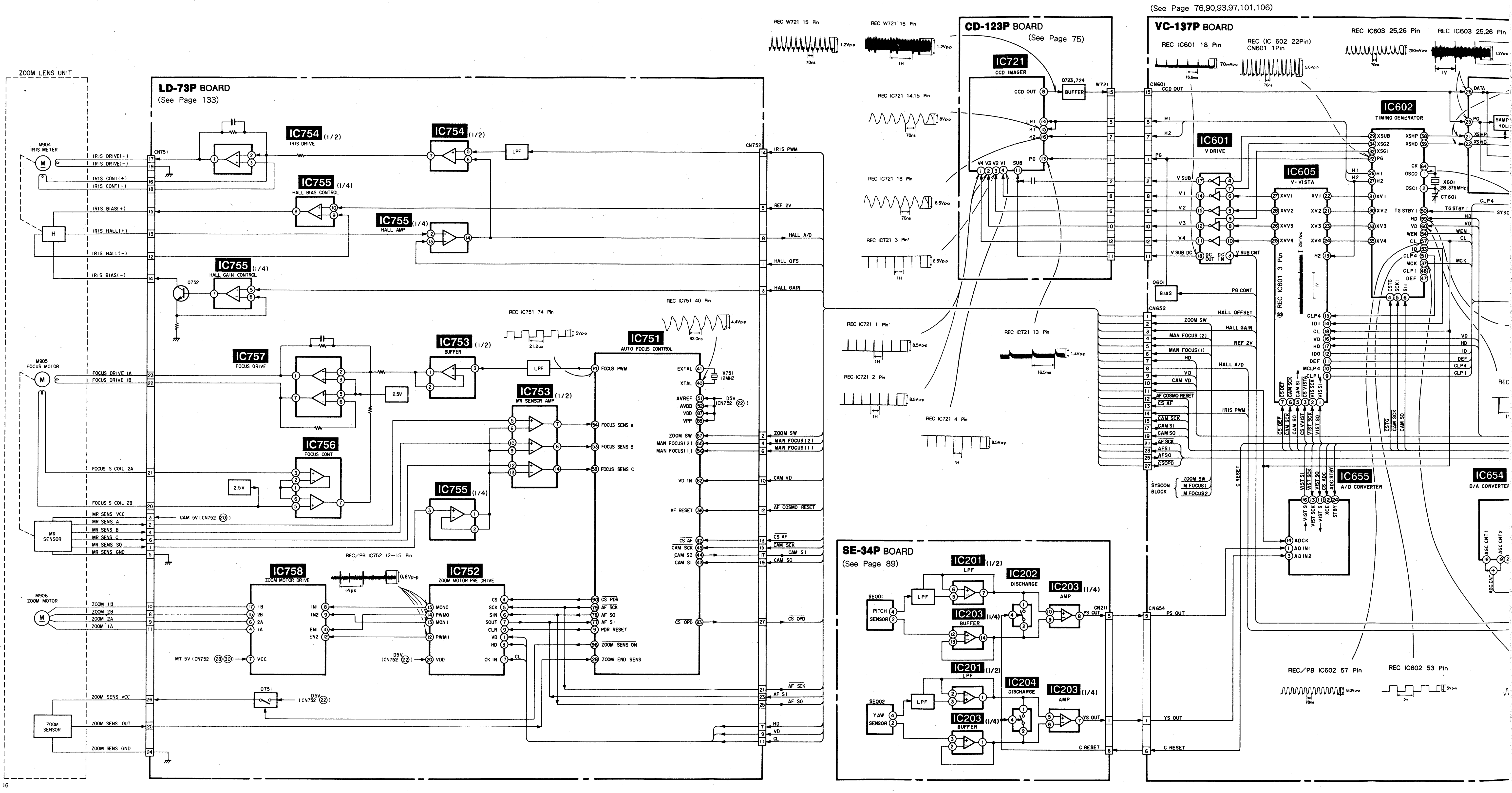
3-2. OVERALL BLOCK DIAGRAM

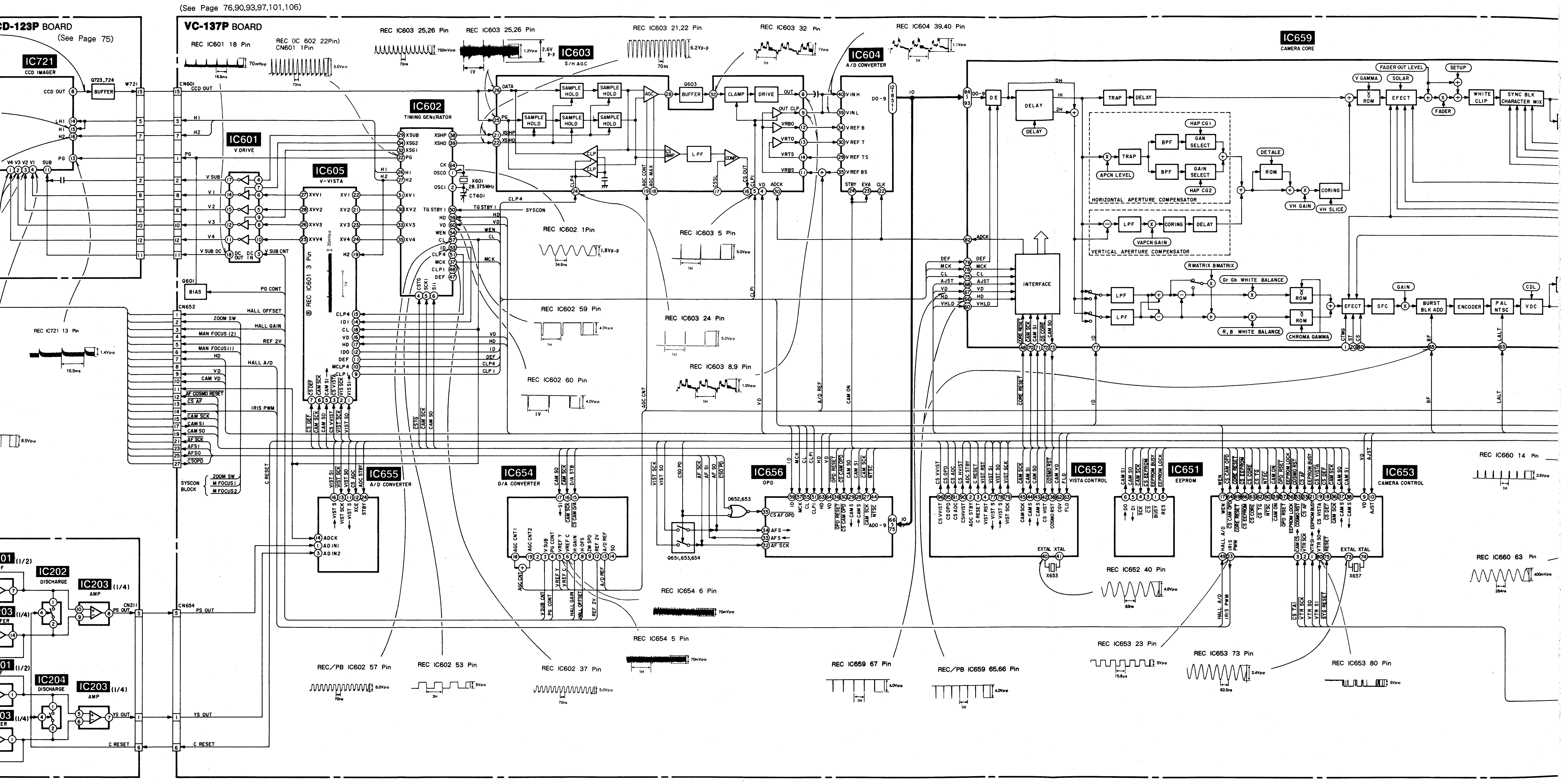

SE-34P BOARD (1/2)
(See Page 89)
SE001
PITCH SENSOR
SE002
YAW SENSOR
IC201 - IC204
PS, YS AMP
PS OUT
YS OUT
IC655
D/A CONVERTER
IC652
VISTA CONTROL
VIS SO, VIS SI, VIS SCK
CD-123P BOARD
(See Page 75)
IC721
CCD IMAGER
CCD OUT
ZOOM LENS
IRIS METER
IC603
SIGNAL SEPARATION AGC
IC604
A/D CONV
D0 - D9
10
IC605
V VISTA
IC601
V DRIVE
VI-V4 V SUB
H1, H2 PG
IC602
TIMING GENERATER
FOCUS MOTOR
ZOOM MOTOR
MR SENSOR
ZOOM SENSOR
HALL
H
LD-73P BOARD
(See Page 133)
IC757
IC756
IC755
IC754
IC753
HR SENS AMP
FOCUS DRIVE
FOCUS PWM
HALL AMP
IRIS DRIVE
IC751
AUTO FOCUS CONTROL
ZOOM MOTOR DRIVE
IC752, IC758
ZOOM SW
MAIN FOCUS (1)(2)
IRIS PWM
HALL A/O
IC653
CAMERA CONTROL
IC654
EVR
ADJUST
VOLTAGE
CAM SO, CAM SI, CAM SCK
IC656
OPD
IC651
EEPROM
VIS
AF SO, AF SI, AF SCK
JK BLOCK
(See Page 147)
S VIDEO
S-Y I/O
S-C I/O
VIDEO
RFU DC OUT
5V
AUDIO
L
R
AUDIO I/O L
AUDIO I/O R
REMOTE (LANC)
LANC SIG
PHONES
EZ-12P BOARD (1/2)
(See Page 148)
AUDIO OUT L
AUDIO OUT R
IC302, IC306
S VIDEO I/O
EZ-Y
EZ-C
IC401 - IC403, IC406
IC551, IC552, IC340
S REC Y
CAM Y
VIDEO I/O
EVF OUT
Y PROCESS
CAM C
S REC C
C PROCESS
IC404, IC405
PB C RF
REC C RF
IC101
PB RF PROCESS
H1B DETECT
E/L DET
Y RF
PB RF
VTR SO, VTR SI, VTR SC
IC303
EVR
ADJUST VOLTAGE
IC001
REC/PB AMP
CH2 B
CH1 B
CH2 A
CH1 A
RF SWP
1/2 RF SWP
FLYING ERASE OSC
FE
FL
CH2 B
CH1 A
MD FL-MECH
REC ATF
IC202
ATF SERVO
PB SP/LP DET
CLOG DET
REF PILOT
ATF ERROR
MA-217P BOARD (1/2)
(See Page 124)
IC001
MIC AMP
MIC
L
R
J101
EXT MIC
MIC L
MIC R
AU-154P BOARD
(See Page 126)
IC801 - IC804
AFM AUDIO PROCESS
AUDIO I/O L.R
MIC L.R
HEADPHON L.R
REC AFM
PB RF
16


SE-34P BOARD (1/2)
(See Page 89)
SE001
PITCH SENSOR
PS OUT
SE002
YAW SENSOR
YS OUT
IC201 - IC204
PS, YS AMP
IC655
D/A CONVERTER
IC652
VISTA CONTROL
IC662
H VISTA
CAM Y
CAM C
VIS SO, VIS SI, VIS SCK
VC-137P BOARD
(See Page 76,90,93,97,101,106)
CD-123P BOARD
(See Page 75)
ZOOM LENS
IRIS METER
IC721
CCD IMAGER
CCD OUT
IC603
SIGNAL SEPARATION AGC
IC604
A/D CONV
IC659
CAMERA CORE (DIGITAL CAMERA) PROCESS
DO-D9
DOYO-7
DOCO-7
IC605
V VISTA
IC601
V DRIVE
IC602
TIMING GENERATOR
V1-V4 V SUB
H1, H2 PG
ZOOM MOTOR
ZOOM SENSOR
HALL
IC755
HALL AMP
IC754
IRIS DRIVE
IC653
CAMERA CONTROL
IC654
EVR
ADJUST
VOLTAGE
IRIS PWM
HALL A/O
CAM SO, CAM SI, CAM SCK
IC660
SYNC GENERATER
IC656
OPD
IC651
EEPROM
VIS SO, VIS SCK
VTR SI, VTR SO, VTR SCK
ZOOM MOTOR DRIVE
IC752, IC758
ZOOM SW
FOCUS (1)(2)
AF SO, AF SI, AF SCK
VTR SO
VTR SI
IC206
LOADING MOTOR DRIVE
M903 LOADING MOTOR
LOAD.UN LOAD
S901 MODE SWITCH
MSW A-C
C.C. LOCK
IC201
MECHA CONTROL/SERVO
MECHA CONTROL
SERVO
FP-423 BLOCK
S991 C.C.LOCK
DEW SENSOR
DEW (+)
D991 TAPE LED
TAPE TOP SENSOR
Q991
H992 T REEL FG SENSOR
Q992
H991 S REEL FG SENSOR
TAPE END SENSOR
TAPE TOP
T REEL (+), (-)
S REEL (+), (-)
TAPE END
IC203 (1/2)
DEW DETECT
TAPE TOP DETECT
T REEL FG AMP
S REEL FG AMP
TAPE END DETECT
DEW
TAPE TOP
T REEL FG
S REEL FG
TAPE END
TAPE LED (K)
S992
HIB MP
ME/MP
REC PROOF
HIB MP SW
ME/MP SW
REC PROOF SW
VIDEO AUDIO SERVO
CONTROL SIG
CLOG, SP/LP DET
EEPROM
IC901
FD-49P BOARD
(See Page 109)
IC902
CHARACTER GENERATER
IC905
CHIP SELECT
MODE CONTROL (MASTER)
LCD PANNEL
DATE, TIME AUTO LOCK SW
ANO1-5, BRIGHT A,B, NM SW, D.RING A,B
SIRCS I
VTR MODE SW
CAM ↔ STBY, START STOP SW
ANO 0,1
EJECT
VTR DD ON
CAM DD ON
IC901
BACK UP VDD
BACK UP VDD SWITCH
LI 3V
IC903
LANC OUT
LANC IN
LANC I/O
IC302, IC306
S VIDEO I/O
EZ-Y
EZ-C
IC401 - IC403, IC406
IC551, IC552, IC340
S REC Y
CAM Y
VIDEO I/O
EVF OUT
Y PROCESS
IC101
PB RF PROCESS HIB DETECT
E/L DET
IC303
EVR
ADJUST VOLTAGE
VTR SO, VTR SI, VTR SCK
Y RF
PB RF
IC404, IC405
PB C RF
CAM C
S REC C
C PROCESS
REC C RF
IC001
REC/PB AMP
CH2 B
CH1 B
CH2 A
CH1 A
RF SWP
1/2 RF SWP
FLYING ERASE OSC
FE
FLYING ERASE
CH2 B
CH1 B
CH1 A
CH2 A
MD FL-MECHA
D PG D FG
(See Page 137)
D PG, D FG
IC203 (1/2)
WAVE SHAPER
DRUM PG, DRUM FG
M901 DRUM MOTOR
DRUM PG, FG
M
IC205 (1/2)
DRUM MOTOR DRIVE
DRUM VS
DV-25P BOARD (1/3)
IC352
DRUM PWM DRIVE
CAPSTAN PWM DRIVE
IC205 (1/2)
LPF
LPF
DRUM ERROR
DPUM PWM
M902 CAPSTAN MOTOR
CAPSTAN FG
IC204
CAPSTAN MOTOR DRIVE
WAVE SHAPER
CAP VS
CAP ERROR
CAP PWM
CFG (+), (-)
RF SWP
1/2 RF SWD
REC ATF
IC202
ATF SERVO
PB SP/LP DET CLOG DET
REF PILOT
ATF ERROR
CAP FG
REF PILOT
ATF ERROR
PB RF
AU-154P BOARD
(See Page 126)
IC801 - IC804
AFM AUDIO PROCESS
AUDIO I/O L.R
MIC L.R
HEADPHON L.R
REC AFM
PB RF
DV-25P BOARD (1/3)
(See Page 137)
CAM 5V CONT
IC351
CAM 15V
CAM -8.5V
CAM 5V
15V
-8.5V
CAMERA DC/DC CONVERTER
CAM UNREG
D5V
EVF 5V
VTR UNREG
EVF 15V
D4V
AU 5V
VIDEO 5V
SS 5V
VTR DC/DC CONVERTER
MOTOR UNREG
VTR DD ON
FVF UNREG
VTR UNREG
EVF OUT
(See
FU-
BOA

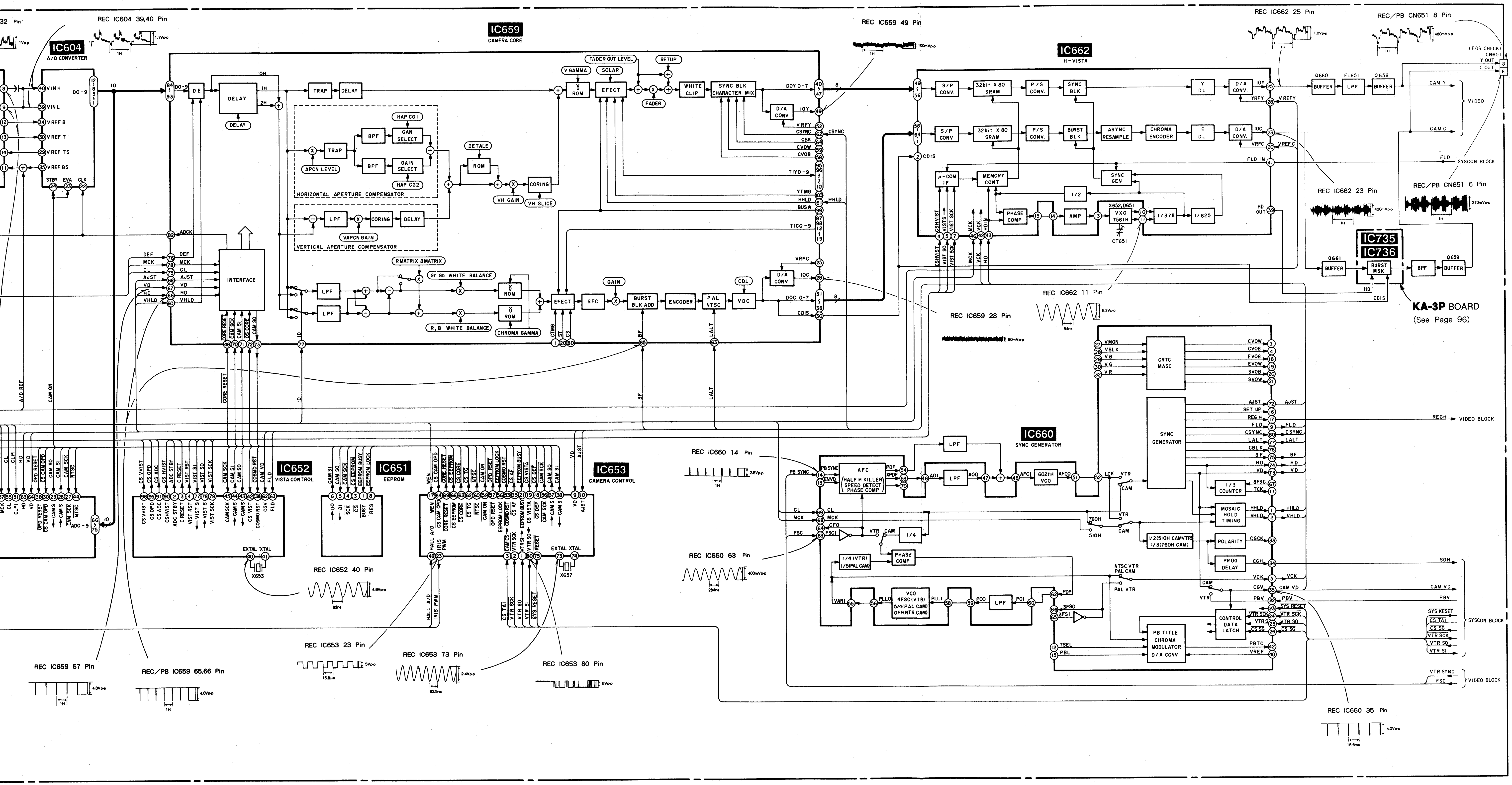

VC-137P BOARD
(See Page 76,90,93,97,101,106)
VTR SO
VTR SI
IC206
LOADING MOTOR DRIVE
M903 LOADING MOTOR
LOAD.UN LOAD
LOAD UN LOAD
S901 MODE SWITCH
MSW A-C
BLOCK
S991 C.C.LOCK
C.C. LOCK
IC201
MECHA CONTROL/SERVO
MECHA CONTROL
SERVO
IC203 (1/2)
DEW SENSOR
DEW(+)
DEW DETECT
DEW
TAPE TOP SENSOR
TAPE TOP
TAPE TOP DETECT
H992 T REEL FG SENSOR
T REEL(+),(−)
T REEL FG AMP
T REEL FG
Q991
Q992
H991 S REEL FG SENSOR
S REEL(+),(−)
S REEL FG AMP
S REEL FG
TAPE END SENSOR
TAPE END
TAPE END DETECT
TAPE LED(K)
S992
HIB MP
ME/MP
REC PROOF
HIB MP SW
ME/MP SW
REC PROOF SW
(See Page 137)
IC203 (1/2)
D PG.D FG
WAVE SHAPER
DRUM PG. DRUM FG
DV-25P BOARD (1/3)
IC352
DRUM PWM DRIVE
CAPSTAN PWM DRIVE
DRUM VS
CAP VS
IC205 (1/2)
DRUM ERROR
LPF
DPUM PWM
CAP ERROR
CAP PWM
CAP FG
REF PILOT
ATF ERROR
VIDEO AUDIO SERVO
CONTROL SIG
CLOG, SP/LP DET
RF SWP
1/2 RF SWD
EEPROM
IC901
CHARACTER GENERATER
IC905
CHIP SELECT
C.C.LOCK
FD-49P BOARD
(See Page 109)
IC902
MODE CONTROL (MASTER)
LCD PANNEL
DATE, TIME AUTO LOCK SW
ANO1-5,BRIGHT A,B,NM SW,D.RING A,B
SIRCS I
VTR MODE SW
CAM + STBY, START STOP SW
ANO 0,1
EJECT
VTR DD ON
CAM DD ON
IC901
BACK UP VDD
BACK UP VDD SWITCH
LI 3V
IC903
LANC OUT
LANC IN
LANC I/O
CF-3700 BLOCK
(See Page 111)
RV1 MANUAL FOCUS
S02,03,07,08,11-14,21-24 CAMERA FUNCTION SWITCH
S01,04,05 POWER,STAND BY START/STOP
LITHIUM BATTERY
(See Page 137)
DV-25P BOARD (1/3)
RV201
ZOOM SW
ZOOM SW
SE-34P BOARD (1/2)
SW201 EJECT SWITCH
(See Page 89)
(See Page 140)
FK-3700 BLOCK
S001-010 VTR FUNCTION SWITCH
(See Page 124)
MA-217P BOARD (1/2)
IC002
SIRCS1
REMOTE CONTROL RECEIVER
DV-25P BOARD (1/3)
(See Page 137)
IC351
CAM 5V CONT
CAM 15V
CAM −8.5V
CAM 5V
15V
−8.5V
CAMERA DC/DC CONVERTER
VTR DC/DC CONVERTER
D5V
EVF 5V
EVF 15V
D4V
AU 5V
VIDEO 5V
SS 5V
VTR DD ON
FVF UNREG
VTR UNREG
CAM UNREG
VTR UNREG
MOTOR UNREG
(See Page 137)
FU-122P BOARD
MAIN BATTERY
Q981
Q982
EZ-12P BOARD (1/2)
(See Page 148)
LANC SIG
ACV UNREG
IC101
BATT GND
BATTERY CHARGE CONTROL
BATT/EXT
Q183
TR ON
LANC SIG
EZ Y
EZ C
Y/C MIX
AUDIO OUT L.R
CN113 EASY CONNECTER
EVF OUT
EVF OUT
ELECTRIC VIEW FINDER
(See Page 121)
VF-61P BOARD
IC802
LCD DRIVE
R
G
B
LCD PANEL
LCD TIMING GENERATER RGB DECODER
IC801
IC803
(See Page 119)
VF-62P BOARD
IC951
EVF UNREG
DC-AC CONVERTER
(See Page 120)
FF-77P BOARD
BACK LIGHT

3-3. CAMERA BLOCK DIAGRAM

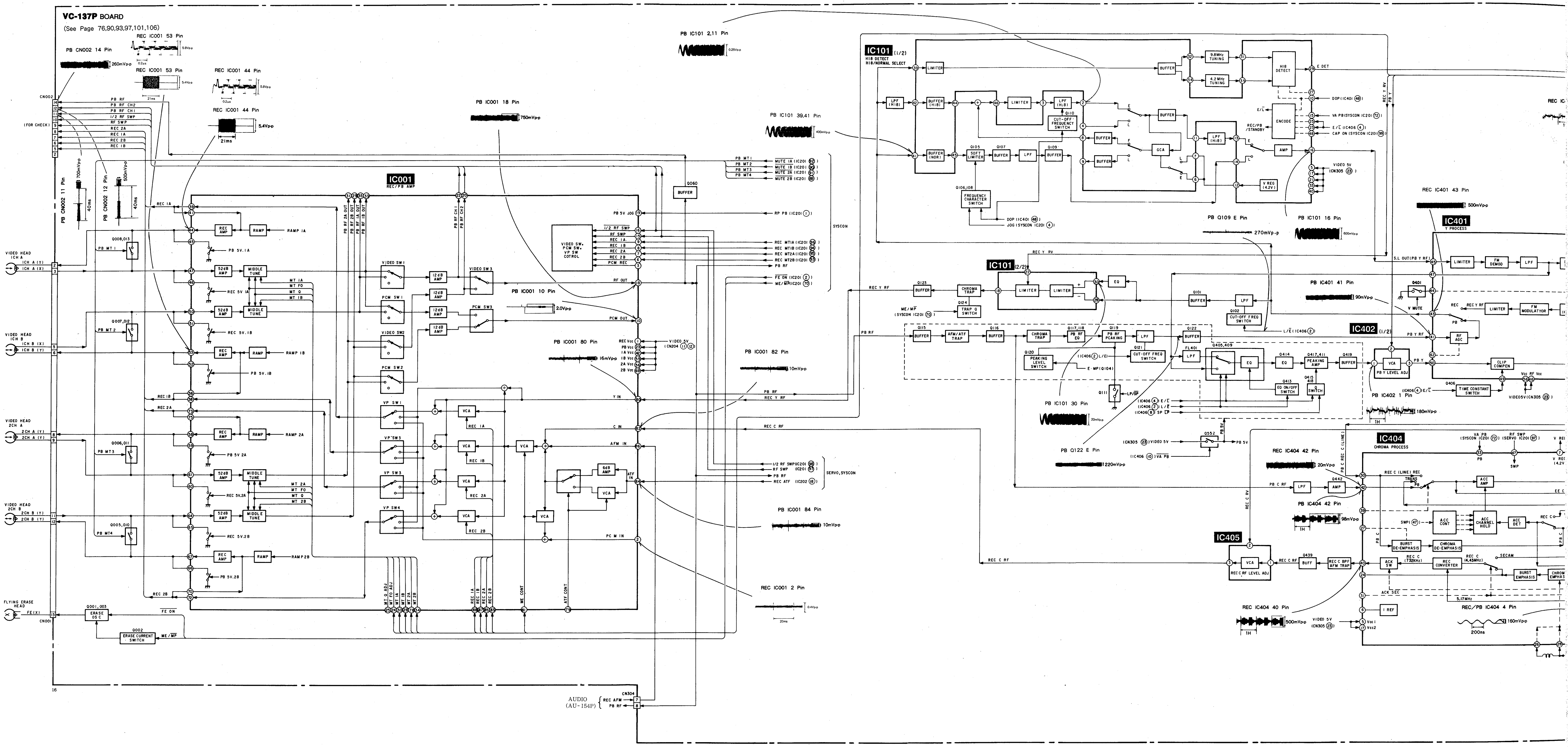

(See Page 76,90,93,97,101,106)
ZOOM LENS UNIT
M904 IRIS METER
M905 FOCUS MOTOR
M906 ZOOM MOTOR
MR SENSOR
ZOOM SENSOR
LD-73P BOARD
(See Page 133)
CN751
CN752
IC754 (1/2) IRIS DRIVE
IC755 (1/4) HALL BIAS CONTROL
IC755 (1/4) HALL AMP
IC755 (1/4) HALL GAIN CONTROL
Q752
IC757 FOCUS DRIVE
IC753 (1/2) BUFFER
IC753 (1/2) MR SENSOR AMP
IC756 FOCUS CONT
IC755 (1/4)
IC751 AUTO FOCUS CONTROL
X751 12MHZ
IC758 ZOOM MOTOR DRIVE
IC752 ZOOM MOTOR PRE DRIVE
Q751
LPF
2.5V
IRIS DRIVE(+)
IRIS DRIVE(-)
IRIS CONT(+)
IRIS CONT(-)
IRIS BIAS(+)
IRIS HALL(+)
IRIS HALL(-)
IRIS BIAS(-)
FOCUS DRIVE 1A
FOCUS DRIVE 1B
FOCUS S COIL 2A
FOCUS S COIL 2B
MR SENS VCC
MR SENS A
MR SENS B
MR SENS C
MR SENS SO
MR SENS GND
ZOOM 1B
ZOOM 2B
ZOOM 2A
ZOOM 1A
ZOOM SENS VCC
ZOOM SENS OUT
ZOOM SENS GND
CAM 5V (CN752 ⑳)
MT 5V (CN752 ㉘㉚)
D5V (CN752 ㉒)
IRIS PWM
REF 2V
HALL A/D
HALL OFS
HALL GAIN
ZOOM SW
MAN FOCUS(2)
MAN FOCUS(1)
CAM VD
AF COSMO RESET
CS AF
CAM SCK
CAM SI
CAM SO
CS OPD
AF SCK
AF SI
AF SO
HD
VD
CL
FOCUS PWM
EXTAL
XTAL
AVREF
AVDD
VDD
VPP
FOCUS SENS A
FOCUS SENS B
FOCUS SENS C
VD IN
AF RESET
CS PDR
AF SCK
AF SO
AF SI
PDR RESET
ZOOM SENS ON
ZOOM END SENS
REC IC751 74 Pin
21.2μs
5Vp-p
REC IC751 40 Pin
83.0ns
4.4Vp-p
REC/PB IC752 12~15 Pin
14μs
0.6Vp-p
REC W721 15 Pin
1.2Vp-p
70ns
1H
REC IC721 14,15 Pin
8Vp-p
REC IC721 16 Pin
8.5Vp-p
REC IC721 3 Pin
REC IC721 1 Pin
REC IC721 2 Pin
REC IC721 4 Pin
REC IC721 13 Pin
1.4Vp-p
16.5ms
CD-123P BOARD
(See Page 75)
IC721 CCD IMAGER
Q723,724 BUFFER
CCD OUT
H1
H2
PG
V4 V3 V2 V1 SUB
W721
VC-137P BOARD
REC IC601 18 Pin
70mVp-p
REC (IC 602 22Pin) CN601 1Pin
5.6Vp-p
REC IC603 25,26 Pin
750mVp-p
REC IC603 25,26 Pin
CN601
IC601 V DRIVE
V SUB
V SUB DC
Q601 BIAS
PG CONT
IC602 TIMING GENERATOR
IC605 V-VISTA
X601 28.375MHz
CT601
XSUB
XSG2
XSG1
XSHP
XSHD
CK
OSCO
OSCI
TG STBY I
WEN
CLP4
ID1
IDO
DEF
MCLP4
CLP1
MCK
CN652
SYSCON BLOCK
ZOOM SW
M FOCUS1
M FOCUS2
C RESET
⑧ REC IC601 3 Pin
IC655 A/D CONVERTER
ADCK
AD IN1
AD IN2
IC654 D/A CONVERTER
AGC CNT1
AGC CNT2
CN654
PS OUT
YS OUT
C RESET
DATA
SAMPLE HOLD
REC/PB IC602 57 Pin
6.0Vp-p
REC IC602 53 Pin
2H
SE-34P BOARD
(See Page 89)
SE001 PITCH SENSOR
SE002 YAW SENSOR
IC201 (1/2) LPF
IC202 DISCHARGE
IC203 (1/4) AMP
IC203 (1/4) BUFFER
IC204 DISCHARGE
CN211
PS OUT
YS OUT
C RESET

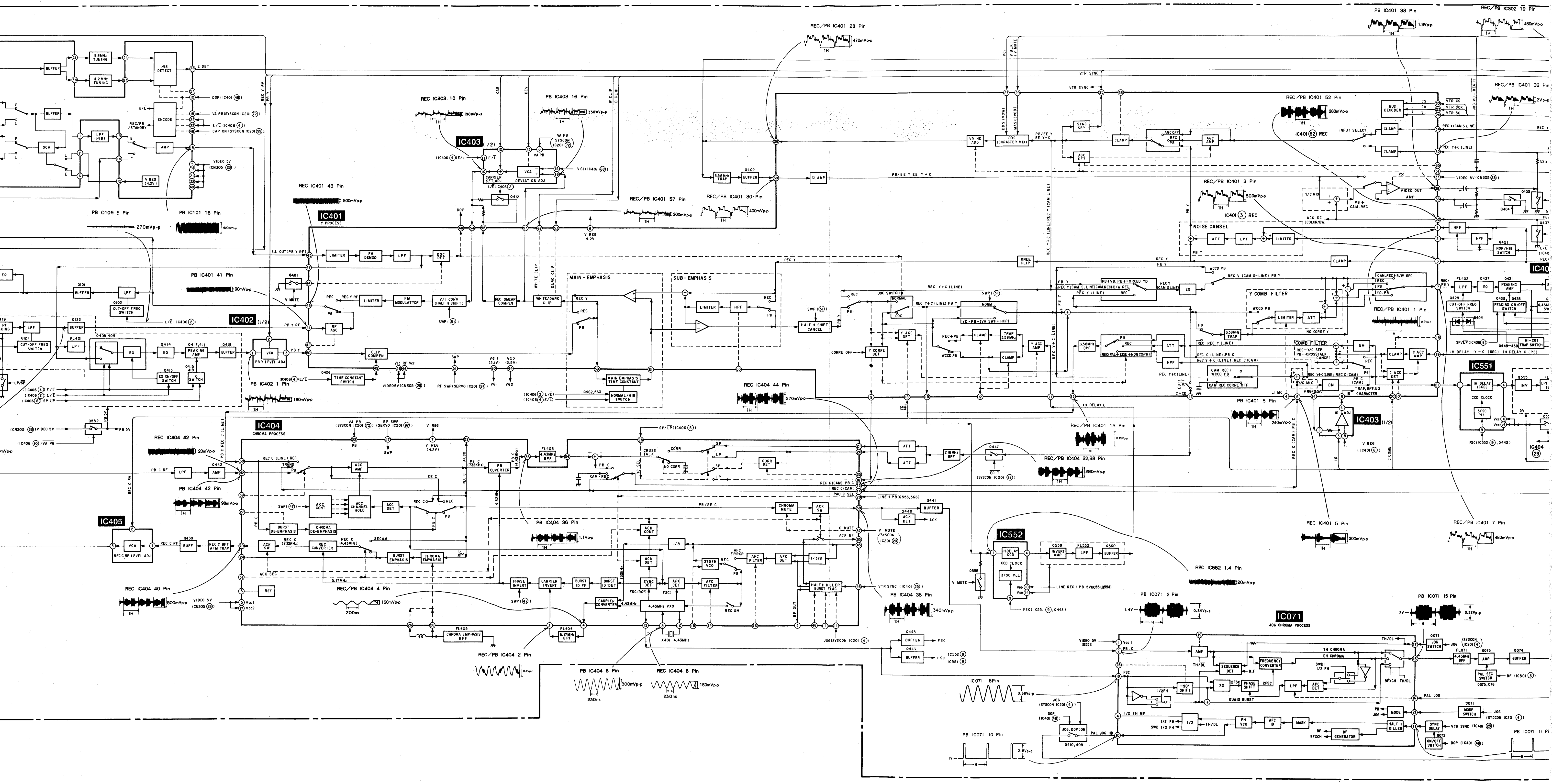


(See Page 76,90,93,97,101,106)
CD-123P BOARD
(See Page 75)
VC-137P BOARD
IC721
CCD IMAGER
Q723,724
BUFFER
W721
CCD OUT
IC601
V DRIVE
IC605
V-VISTA
IC602
TIMING GENERATOR
IC603
S/H AGC
IC604
A/D CONVERTER
IC659
CAMERA CORE
IC655
A/D CONVERTER
IC654
D/A CONVERTER
IC656
OPD
IC652
VISTA CONTROL
IC651
EEPROM
IC653
CAMERA CONTROL
IC202
DISCHARGE
IC203 (1/4)
AMP
IC204
DISCHARGE
Q601
BIAS
Q603
BUFFER
X601
28.375MHz
CT601
SAMPLE HOLD
AGC
CLAMP
DRIVE
LPF
COMP
CLP
DELAY
TRAP
ROM
EFFECT
WHITE CLIP
SYNC BLK CHARACTER MIX
FADER OUT LEVEL
SOLAR
SETUP
FADER
V GAMMA
HAP CG1
HAP CG2
GAIN SELECT
BPF
APCN LEVEL
HORIZONTAL APERTURE COMPENSATOR
VERTICAL APERTURE COMPENSATOR
VAPCN GAIN
CORING
DETALE
VH GAIN
VH SLICE
INTERFACE
RMATRIX BMATRIX
Gr Gb WHITE BALANCE
R, B WHITE BALANCE
CHROMA GAMMA
GAIN
SFC
BURST BLK ADD
ENCODER
PAL NTSC
CDL
VDC
Q651,653,654
D652,653
X653
X657
EXTAL XTAL
CN601
CN652
CN654
CN211
SYSCON BLOCK
ZOOM SW
M FOCUS1
M FOCUS2
HALL OFFSET
HALL GAIN
MAN FOCUS(2)
MAN FOCUS(1)
REF 2V
HALL A/D
IRIS PWM
PS OUT
YS OUT
C RESET
REC IC601 18 Pin
REC (IC 602 22Pin) CN601 1Pin
REC IC603 25,26 Pin
REC IC603 21,22 Pin
REC IC603 32 Pin
REC IC604 39,40 Pin
REC IC602 1Pin
REC IC603 5 Pin
REC IC602 59 Pin
REC IC603 24 Pin
REC IC602 60 Pin
REC IC603 8,9 Pin
REC IC601 3 Pin
REC IC721 13 Pin
REC/PB IC602 57 Pin
REC IC602 53 Pin
REC IC602 37 Pin
REC IC654 6 Pin
REC IC654 5 Pin
REC IC659 67 Pin
REC/PB IC659 65,66 Pin
REC IC652 40 Pin
REC IC653 23 Pin
REC IC653 73 Pin
REC IC653 80 Pin
REC IC660 14 Pin
REC IC660 63 Pin

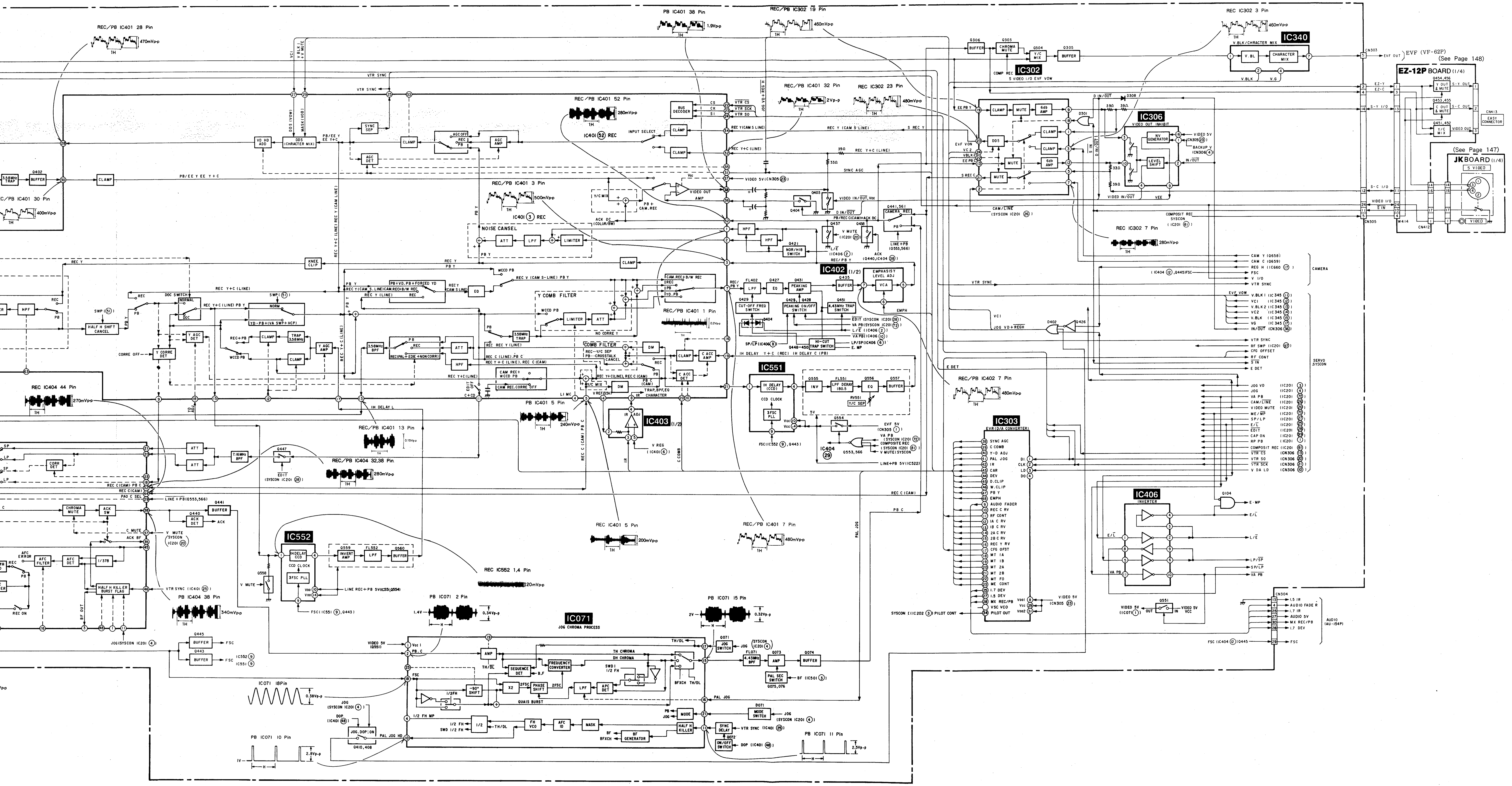

IC604
A/D CONVERTER
REC IC604 39,40 Pin
IC659
CAMERA CORE
REC IC659 49 Pin
IC662
H-VISTA
REC IC662 25 Pin
REC/PB CN651 8 Pin
(FOR CHECK) CN651
Y OUT
C OUT
VIN H
VIN L
VREF B
VREF T
VREF TS
VREF BS
STBY
EVA
CLK
DO-9
IO
DE
DELAY
TRAP
BPF
GAIN SELECT
HAP CG1
HAP CG2
APCN LEVEL
HORIZONTAL APERTURE COMPENSATOR
VERTICAL APERTURE COMPENSATOR
LPF
CORING
VAPCN GAIN
DETALE
ROM
VH GAIN
VH SLICE
V GAMMA
SOLAR
FADER OUT LEVEL
SETUP
FADER
EFECT
WHITE CLIP
SYNC BLK CHARACTER MIX
D/A CONV
INTERFACE
DEF
MCK
CL
AJST
VD
HD
VHLD
ADCK
RMATRIX BMATRIX
Gr Gb WHITE BALANCE
R, B WHITE BALANCE
CHROMA GAMMA
GAIN
SFC
BURST BLK ADD
ENCODER
PAL NTSC
VDC
CDL
IOY
VREFY
CSYNC
CBK
CVOW
CVOB
TIYO-9
YTMG
HHLD
BUSW
TICO-9
VRFC
IOC
DOY 0-7
DOC 0-7
CDIS
CORE RESET
CORE SCK
CAM SI
CS CORE
CAM SO
ID
BF
LALT
CTMG
S/P CONV.
32bit X 80 SRAM
P/S CONV.
SYNC BLK
BURST BLK
ASYNC RESAMPLE
CHROMA ENCODER
Y DL
C DL
D/A CONV.
μ-COM I/F
MEMORY CONT
SYNC GEN
1/2
PHASE COMP
AMP
X652,D651
VXO 756fH
CT651
1/378
1/625
FLD IN
HD OUT
YRFY
VREFY
VREFC
VRFC
Q660 BUFFER
FL651 LPF
Q658 BUFFER
CAM Y
CAM C
VIDEO
FLD
SYSCON BLOCK
REC IC662 23 Pin
REC/PB CN651 6 Pin
IC735
IC736
Q661 BUFFER
BURST MSK
BPF
Q659 BUFFER
HD
CDIS
KA-3P BOARD
(See Page 96)
REC IC662 11 Pin
REC IC659 28 Pin
VMON
VBLK
VB
VG
VR
CRTC MASC
CVOW
CVOB
EVOB
EVOW
SVOB
SVOW
SYNC GENERATOR
AJST
SET UP
REG H
FLD
CSYNC
LALT
CBLK
BF
HD
VD
REGH
VIDEO BLOCK
IC660
SYNC GENERATOR
LPF
AFC (HALF H KILLER) SPEED DETECT PHASE COMP
PB SYNC
ENVD
PDF
XPDF
AOI
AOO
AFCI
602fH VCO
AFCO
LCK
VTR
CAM
1/3 COUNTER
BFSC
TCK
MOSAIC HOLD TIMING
HHLD
VHLD
760H
510H
1/2(510H CAMVTR) 1/3(760H CAM)
POLARITY
CGCK
PROG DELAY
CGH
SGH
VCK
CGV
CAM VD
PBV
CONTROL DATA LATCH
SYS RESET
VTR SCK
VTR SO
CS SG
SYS RESET
CS TAI
VTR SI
PB TITLE CHROMA MODULATOR D/A CONV.
PBTC
VREF
TSEL
PBL
REC IC660 14 Pin
REC IC660 63 Pin
CL
MCK
FSC
CFO
FSCI
1/4
PHASE COMP
1/4 (VTR) 1/5(PAL CAM)
VCO 4FSC(VTR) 5/4(PAL CAM) OFFINTS.CAM)
PLLO
PLLI
POO
POI
PDP
VARI
3FSO
3FSI
NTSC VTR PAL CAM
PAL VTR
VTR SYNC
FSC
VIDEO BLOCK
REC IC660 35 Pin
IC652
VISTA CONTROL
IC651
EEPROM
IC653
CAMERA CONTROL
CS VVIST
CS OPD
CS ADC
CSHVIST
ADC STBY
C RESET
VIST RST
VIST S
VIST SO
VIST SCK
CAM SCK
CAM S
CAM SO
CS VIST
COSMO RST
CGV
FLD
DO
DI
SCK
CS
BUSY
RES
WEN
CS CAM OPD
CORE RESET
CS EEPROM
CS CORE
CS TG
NTSC
CAM ON
OPD RESET
EEPROM LOCK
COSMO RST
CS AF
EEPROM BUSY
CS VISTA
CS DEF
CAM SCK
CAM SO
CAM SI
HALL A/D
IRIS PWM
VTR SCK
VTR SO
VTR SI
SYS RESET
AJST
EXTAL
XTAL
X653
X657
REC IC652 40 Pin
REC IC653 23 Pin
REC IC653 73 Pin
REC IC653 80 Pin
REC IC659 67 Pin
REC/PB IC659 65,66 Pin
A/D REF
CAM ON
CL
CLPI
HD
VD
OPD RESET
CS CAM OPD
CAM S
CAM SCK
NTSC
ADO-9
1H
1.1Vpp
1.0Vpp
480mVpp
100mVpp
420mVpp
270mVpp
5.2Vpp
84ns
90mVpp
2.5Vpp
400mVpp
284ns
4.6Vpp
63ns
5Vpp
15.8μs
2.4Vpp
62.5ns
5Vpp
4.0Vpp
16.6ms

3-4. VIDEO BLOCK DIAGRAM

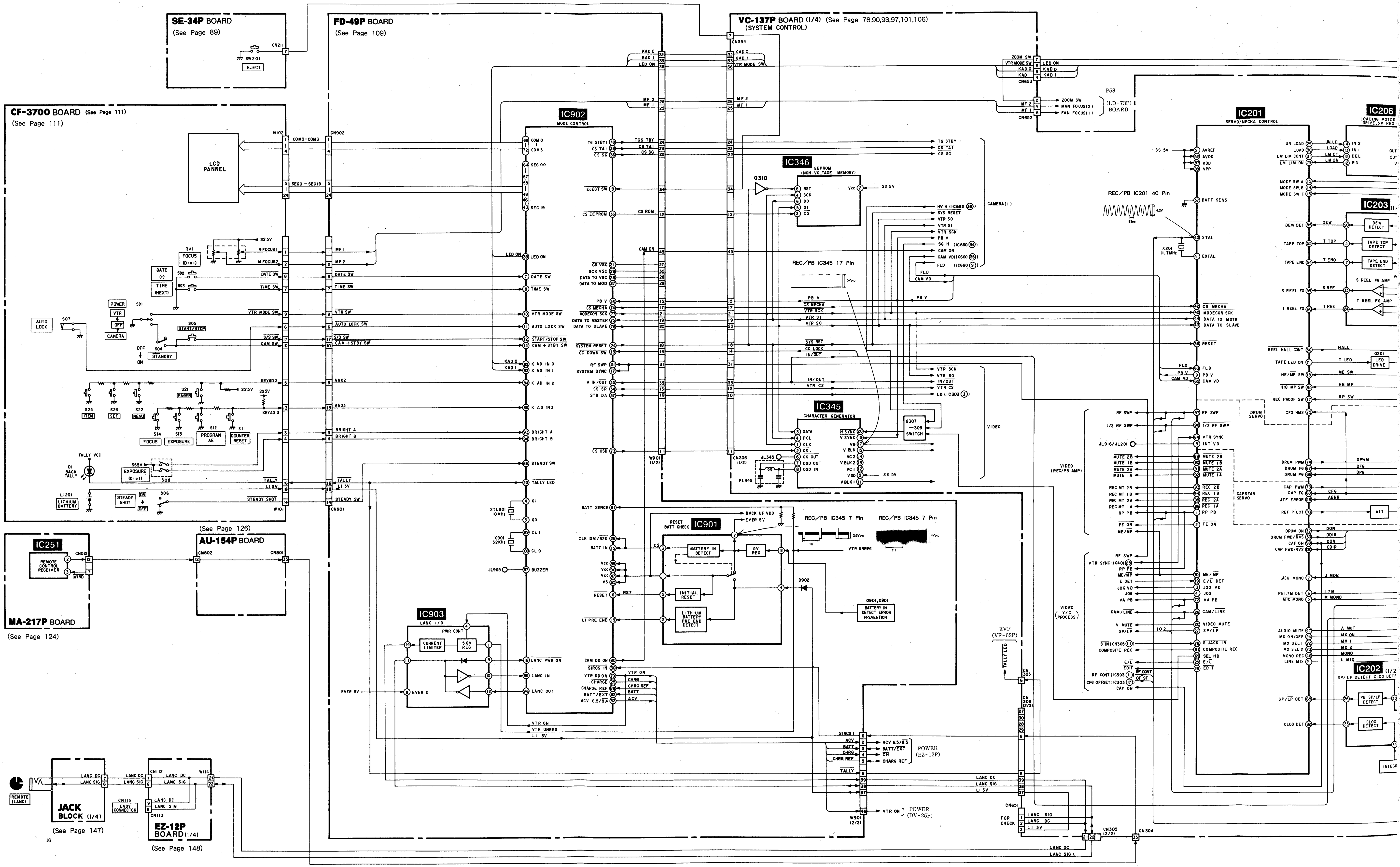

VC-137P BOARD
(See Page 76,90,93,97,101,106)
PB CN002 14 Pin
260mVp-p
REC IC001 53 Pin
REC IC001 44 Pin
5.4Vp-p
21ms
PB CN002 11 Pin
700mVp-p
PB CN002 12 Pin
500mVp-p
40ms
CN002
(FOR CHECK)
PB RF
PB RF CH2
PB RF CH1
1/2 RF SWP
RF SWP
REC 2A
REC 1A
REC 2B
REC 1B
VIDEO HEAD 1CH A
1CH A (Y)
1CH A (X)
VIDEO HEAD 1CH B
1CH B (X)
1CH B (Y)
VIDEO HEAD 2CH A
2CH A (Y)
VIDEO HEAD 2CH B
2CH B (Y)
FLYING ERASE HEAD
FE (X)
CN001
Q001,003
ERASE OSC
Q002
ERASE CURRENT SWITCH
FE ON
ME/MP
Q008,013
Q007,012
Q006,011
Q005,010
PB MT1
PB MT2
PB MT3
PB MT4
REC AMP
RAMP
RAMP 1A
RAMP 1B
RAMP 2A
RAMP 2B
52dB AMP
MIDDLE TUNE
PB 5V.1A
REC 5V.1A
PB 5V.1B
REC 5V.1B
PB 5V.2A
REC 5V.2A
REC 5V.2B
PB 5V.2B
MT 1A
MT F0
MT Q
MT 1B
MT 2A
MT 2B
IC001
REC/PB AMP
VIDEO SW1
VIDEO SW2
VIDEO SW3
PCM SW1
PCM SW2
PCM SW3
VP SW1
VP SW3
VP SW4
12dB AMP
VCA
6dB AMP
ATF IN
VIDEO SW, PCM SW, VP SW COTROL
PB 5V JOG
1/2 RF SWP
RF SWP
RF OUT
PCM OUT
PCM REC
Y IN
C IN
AFM IN
PC M IN
REC Vcc
PB Vcc
MT 0 ADJ
ME CONT
ATF CONT
Q060
BUFFER
PB MT1
PB MT2
PB MT3
PB MT4
MUTE 1A (IC201)
MUTE 1B (IC201)
MUTE 2A (IC201)
MUTE 2B (IC201)
RP PB (IC201)
REC MT1A (IC201)
REC MT1B (IC201)
REC MT2A (IC201)
REC MT2B (IC201)
FE ON (IC201)
ME/MP (IC201)
SYSCON
SERVO,SYSCON
REC ATF (IC202)
PB IC001 18 Pin
750mVp-p
PB IC001 10 Pin
2.0Vp-p
PB IC001 80 Pin
16mVp-p
PB IC001 82 Pin
10mVp-p
PB IC001 84 Pin
10mVp-p
REC IC001 2 Pin
VIDEO 5V (CN204)
AUDIO (AU-154P)
CN304
REC AFM
PB RF
PB IC101 2,11 Pin
PB IC101 39,41 Pin
400mVp-p
IC101 (1/2)
HIB DETECT
HIB/NORMAL SELECT
LIMITER
LPF (HIB)
BUFFER (HIB)
BUFFER (NOR)
Q105
SOFT LIMITER
Q107
BUFFER
LPF
Q109
Q110
CUT-OFF FREQUENCY SWITCH
Q106,108
FREQUENCY CHARACTER SWITCH
DOP (IC401)
JOG (SYSCON IC201)
9.8MHz TUNING
4.2MHz TUNING
HIB DETECT
E DET
ENCODE
REC/PB /STANDBY
GCA
AMP
V REG (4.2V)
VA PB (SYSCON IC201)
E/L (IC406)
CAP ON (SYSCON IC201)
VIDEO 5V (CN305)
PB Q109 E Pin
270mVp-p
PB IC101 16 Pin
IC101 (2/2)
REC Y RV
EQ
Q123
BUFFER
CHROMA TRAP
Q124
TRAP Q SWITCH
Q115
AFM/ATF TRAP
Q116
Q117,118
PB RF EQ
Q119
PB RF PEAKING
Q121
CUT-OFF FREQ SWITCH
Q120
PEAKING LEVEL SWITCH
Q101
Q102
FL401
Q122
Q405,409
Q414
Q417,411
PEAKING AMP
Q419
Q413
EQ ON/OFF SWITCH
Q415
SWITCH
Q111
LP/SP
PB IC101 30 Pin
PB Q122 E Pin
1220mVp-p
Q552
PB 5V
REC IC401 43 Pin
500mVp-p
IC401
Y PROCESS
LIMITER
FM DEMOD
Q401
V MUTE
FM MODULATOR
RF AGC
PB IC401 41 Pin
90mVp-p
IC402 (1/2)
PB Y LEVEL ADJ
CLIP COMPEN
Q406
TIME CONSTANT SWITCH
PB IC402 1 Pin
180mVp-p
IC404
CHROMA PROCESS
REC IC404 42 Pin
20mVp-p
Q442
PB C RF
PB IC404 42 Pin
98mVp-p
ACC AMP
ACC CONT
ACC CHANNEL HOLD
ACC DET
BURST DE-EMPHASIS
CHROMA DE-EMPHASIS
IC405
REC C RF LEVEL ADJ
Q439
BUFF
REC C BPF AFM TRAP
ACK SW
REC C (732KHz)
REC CONVERTER
REC C (4.43MHz)
SECAM
BURST EMPHASIS
ACK SEC
5.17MHz
1 REF
REC IC404 40 Pin
500mVp-p
REC/PB IC404 4 Pin
160mVp-p
200ns

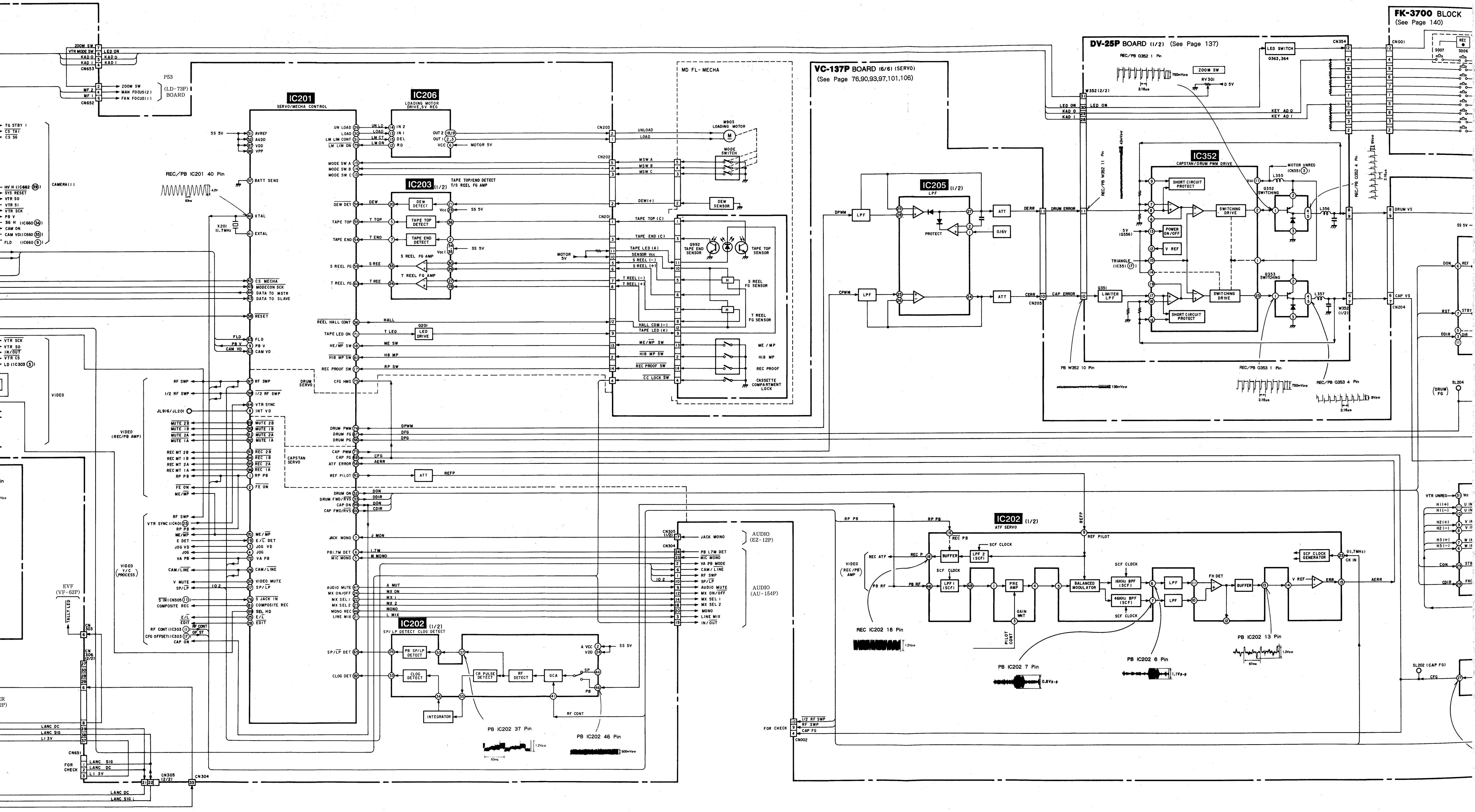


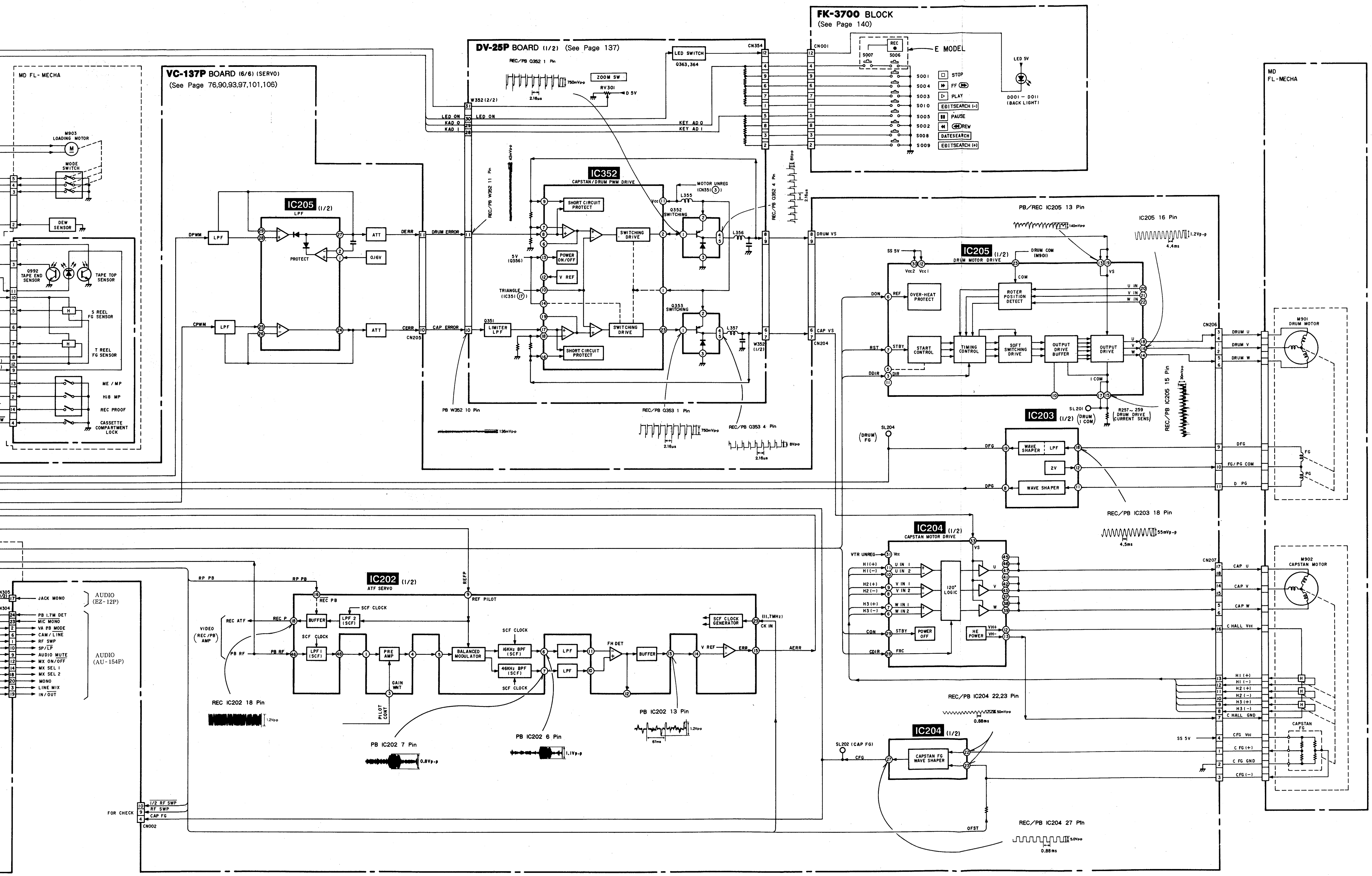
IC401
Y PROCESS
IC402 (1/2)
IC403 (1/2)
IC404
CHROMA PROCESS
IC405
IC551
IC552
IC071
JOG CHROMA PROCESS
HIB DETECT
ENCODE
9.8MHz TUNING
4.2MHz TUNING
BUFFER
LIMITER
FM DEMOD
LPF
DOC DET
FM MODULATOR
MAIN-EMPHASIS
SUB-EMPHASIS
MAIN EMPHASIS TIME CONSTANT
NORMAL/HIB SWITCH
CLIP COMPEN
WHITE/DARK CLIP
REC SMEAR COMPEN
CARRIER SET ADJ
DEVIATION ADJ
PB Y LEVEL ADJ
REC C RF LEVEL ADJ
ACC AMP
ACC CONT
ACC CHANNEL HOLD
ACK DET
BURST DE-EMPHASIS
CHROMA DE-EMPHASIS
REC CONVERTER
BURST EMPHASIS
CHROMA EMPHASIS
PHASE INVERT
CARRIER INVERT
BURST ID FF
BURST ID DET
CARRIER CONVERTER
4.43MHz VXO
SYNC DET
APC DET
AFC FILTER
AFC DET
HALF H KILLER BURST FLAG
CROSS TALK
CORR DET
CHROMA MUTE
ACK SW
Y COMB FILTER
COMB FILTER
NOISE CANSEL
KNEE CLIP
HALF H SHIFT CANCEL
Y CORRE DET
Y AGC DET
3.58MHz TRAP
BUS DECODER
VIDEO OUT AMP
1H DELAY (CCD)
CCD CLOCK
3FSC PLL
DDS (CHRACTER MIX)
SEQUENCE DET
FREQUENCY CONVERTER
PHASE SHIFT
QUAIS BURST
BF GENERATOR
REC IC401 43 Pin 500mVp-p
PB IC401 41 Pin 90mVp-p
PB IC402 1 Pin 180mVp-p
REC IC403 10 Pin 190mVp-p
PB IC403 16 Pin 350mVp-p
REC/PB IC401 57 Pin 300mVp-p
REC/PB IC401 28 Pin 470mVp-p
REC/PB IC401 30 Pin 400mVp-p
REC/PB IC401 52 Pin 280mVp-p
REC/PB IC401 3 Pin 500mVp-p
REC/PB IC401 1 Pin
REC/PB IC401 13 Pin
REC/PB IC401 5 Pin 240mVp-p
REC IC401 5 Pin 200mVp-p
REC/PB IC401 7 Pin 480mVp-p
PB IC401 38 Pin 1.9Vp-p
REC/PB IC302 19 Pin 460mVp-p
REC/PB IC401 32 Pin 2Vp-p
REC IC404 44 Pin 270mVp-p
REC/PB IC404 32,38 Pin 280mVp-p
REC IC404 42 Pin 20mVp-p
PB IC404 42 Pin 98mVp-p
PB IC404 36 Pin 1.1Vp-p
REC IC404 40 Pin 500mVp-p
REC/PB IC404 4 Pin 160mVp-p
REC/PB IC404 2 Pin
PB IC404 8 Pin 300mVp-p
REC IC404 8 Pin 150mVp-p
PB IC404 38 Pin 340mVp-p
REC IC552 1,4 Pin 20mVp-p
PB IC071 2 Pin 0.34Vp-p
PB IC071 15 Pin 0.32Vp-p
IC071 18Pin 0.38Vp-p
PB IC071 10 Pin 2.8Vp-p
PB IC071 11 Pin
PB Q109 E Pin 270mVp-p
PB IC101 16 Pin


REC/PB IC401 28 Pin
470mVp-p
PB IC401 38 Pin
1.9Vp-p
REC/PB IC302 19 Pin
460mVp-p
REC IC302 3 Pin
460mVp-p
IC340
V.BLK/CHRACTER MIX
V.BL
CHARACTER MIX
EVF (VF-62P)
(See Page 148)
EZ-12P BOARD (1/4)
EASY CONNECTOR
IC302
IC306
VIDEO OUT INHIBIT
(See Page 147)
JK BOARD (1/4)
S VIDEO
VIDEO
REC/PB IC401 52 Pin
280mVp-p
IC401 (52) REC
REC/PB IC401 32 Pin
2Vp-p
REC IC302 23 Pin
480mVp-p
REC/PB IC401 3 Pin
500mVp-p
IC401 (3) REC
NOISE CANSEL
REC IC302 7 Pin
280mVp-p
IC402 (1/2)
EMPHASIS LEVEL ADJ
Y COMB FILTER
COMB FILTER
REC/PB IC401 1 Pin
IC551
REC/PB IC402 7 Pin
480mVp-p
IC403 (1/2)
PB IC401 5 Pin
240mVp-p
REC/PB IC401 13 Pin
REC/PB IC404 32,38 Pin
280mVp-p
REC IC404 44 Pin
270mVp-p
C/PB IC401 30 Pin
400mVp-p
IC303
EVR (D/A CONVERTER)
IC406
INVERTER
REC IC401 5 Pin
200mVp-p
REC/PB IC401 7 Pin
480mVp-p
IC552
REC IC552 1,4 Pin
20mVp-p
PB IC404 38 Pin
340mVp-p
PB IC071 2 Pin
0.34Vp-p
PB IC071 15 Pin
0.32Vp-p
IC071
JOG CHROMA PROCESS
IC071 18Pin
0.38Vp-p
PB IC071 10 Pin
2.8Vp-p
PB IC071 11 Pin
2.5Vp-p
CAMERA
SERVO SYSCON
AUDIO (AU-154P)

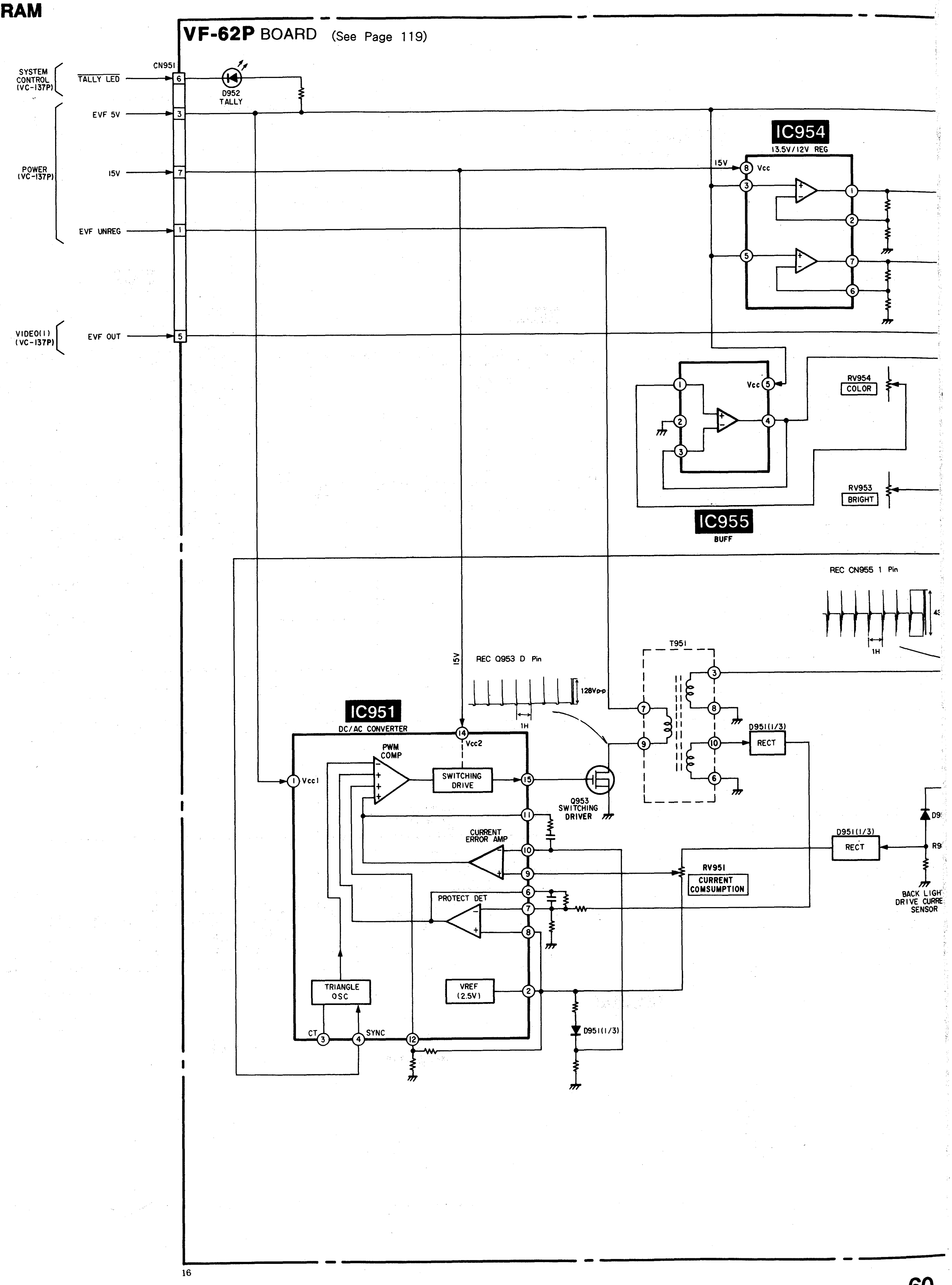
3-5. SERVO/SYSTEM CONTROL BLOCK

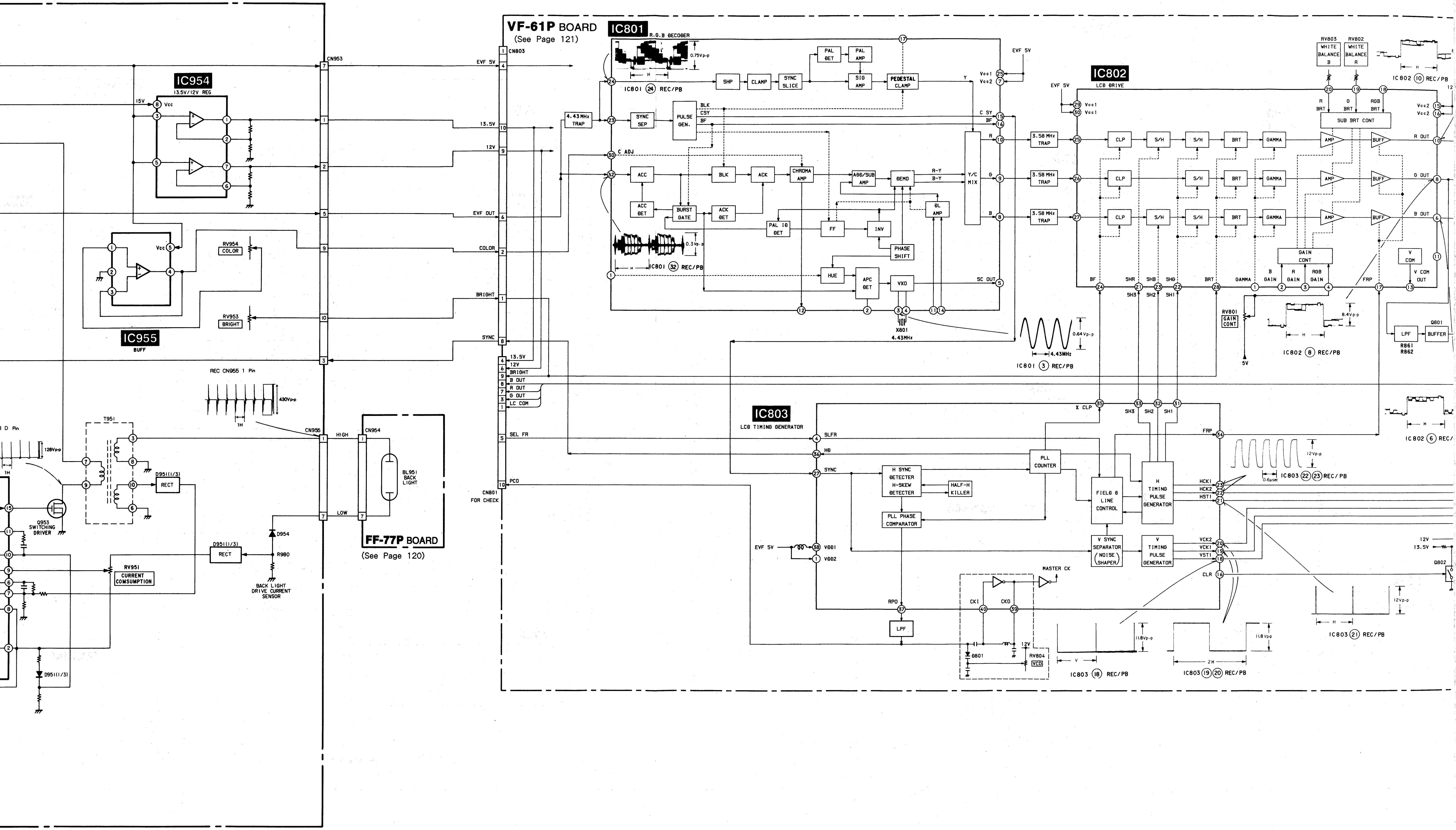

SE-34P BOARD
(See Page 89)
SW201
EJECT
CN211
FD-49P BOARD
(See Page 109)
VC-137P BOARD (1/4) (See Page 76,90,93,97,101,106)
(SYSTEM CONTROL)
CF-3700 BOARD (See Page 111)
(See Page 111)
LCD PANNEL
COMO-COM3
SEGO-SEG19
IC902
MODE CONTROL
IC346
EEPROM (NON-VOLTAGE MEMORY)
Q310
IC345
CHARACTER GENERATOR
Q307–309 SWITCH
IC901
RESET BATT CHECK
BATTERY IN DETECT
5V REG
INITIAL RESET
LITHIUM BATTERY PRE END DETECT
D902
Q901,D901 BATTERY IN DETECT ERROR PREVENTION
IC903
LANC I/O
PWR CONT
CURRENT LIMITER
5.6V REG
EVER 5
XTL901 10MHz
X901 32KHz
REC/PB IC345 17 Pin
REC/PB IC345 7 Pin
REC/PB IC201 40 Pin
IC251
REMOTE CONTROL RECEIVER
MA-217P BOARD
(See Page 124)
AU-154P BOARD
(See Page 126)
JACK BLOCK (1/4)
(See Page 147)
REMOTE (LANC)
EZ-12P BOARD (1/4)
(See Page 148)
CN113 EASY CONNECTOR
P53 (LD-73P) BOARD
ZOOM SW
MAN FOCUS(2)
FAN FOCUS(1)
IC201
SERVO/MECHA CONTROL
IC206
LOADING MOTOR DRIVE,5V REG
IC203
IC202
SP/LP DETECT CLOG DETE
DEW DETECT
TAPE TOP DETECT
TAPE END DETECT
S REEL FG AMP
T REEL FG AMP
Q201 LED DRIVE
DRUM SERVO
CAPSTAN SERVO
ATT
PB SP/LP DETECT
CLOG DETECT
INTEGR
CAMERA(1)
VIDEO
VIDEO (REC/PB AMP)
VIDEO Y/C (PROCESS)
EVF (VF-62P)
TALLY LED
POWER (EZ-12P)
POWER (DV-25P)
FOR CHECK
CN305 (2/2)
CN304
W901 (1/2)
W901 (2/2)
CN306 (1/2)
CN306 (2/2)
JL345
FL345
FOCUS
BATE (+)
TIME (NEXT)
POWER
VTR
OFF
CAMERA
AUTO LOCK
START/STOP
STANDBY
ITEM
SET
MENU
FADER
FOCUS
EXPOSURE
PROGRAM AE
COUNTER RESET
EXPOSURE (Dial)
BACK TALLY
LITHIUM BATTERY
STEADY SHOT

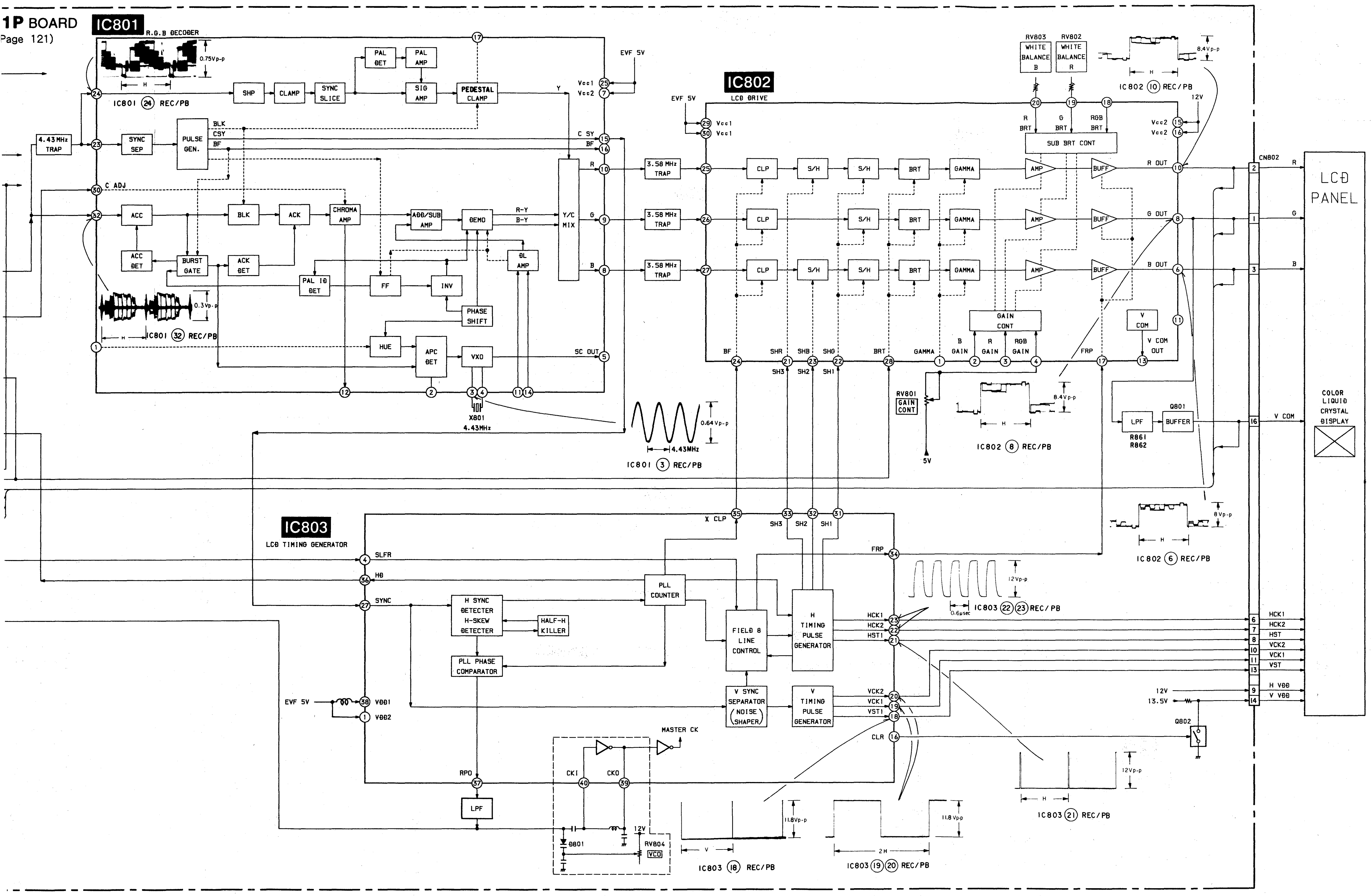

IC201
SERVO/MECHA CONTROL
IC206
LOADING MOTOR DRIVE, 5V REG
IC203 (1/2)
TAPE TOP/END DETECT
T/S REEL FG AMP
IC202 (1/2)
SP/LP DETECT CLOG DETECT
IC205 (1/2)
LPF
IC352
CAPSTAN/DRUM PWM DRIVE
IC202 (1/2)
ATF SERVO
VC-137P BOARD (6/6) (SERVO)
(See Page 76,90,93,97,101,106)
DV-25P BOARD (1/2) (See Page 137)
FK-3700 BLOCK
(See Page 140)
MD FL-MECHA
M903
LOADING MOTOR
MODE SWITCH
DEW SENSOR
Q992
TAPE END SENSOR
TAPE TOP SENSOR
S REEL FG SENSOR
T REEL FG SENSOR
ME / MP
Hi8 MP
REC PROOF
CASSETTE COMPARTMENT LOCK
P53
(LD-73P) BOARD
ZOOM SW
MAN FOCUS(2)
FAN FOCUS(1)
LED ON
KAD 0
KAD 1
CN653
CN652
REC/PB IC201 40 Pin
X201
11.7MHz
SS 5V
AVREF
AVDD
VDD
VPP
BATT SENS
XTAL
EXTAL
CS MECHA
MODECON SCK
DATA TO MSTR
DATA TO SLAVE
RESET
FLD
PB V
CAM VD
RF SWP
1/2 RF SWP
VTR SYNC
INT VD
JL916/JL201
MUTE 2B
MUTE 1B
MUTE 2A
MUTE 1A
REC 2B
REC 1B
REC 2A
REC 1A
RP PB
FE ON
ME/MP
E/L DET
JOG VD
JOG
VA PB
CAM/LINE
VIDEO MUTE
SP/LP
S JACK IN
COMPOSITE REC
SEL HD
E/L
EDIT
VIDEO
VIDEO (REC/PB AMP)
VIDEO Y/C (PROCESS)
CAMERA(1)
EVF
(VF-62P)
TALLY LED
UN LOAD
LOAD
LM LIM CONT
LM LIM ON
MODE SW A
MODE SW B
MODE SW C
DEW DET
TAPE TOP
TAPE END
S REEL FG
T REEL FG
REEL HALL CONT
TAPE LED ON
HE/MP SW
Hi8 MP SW
REC PROOF SW
CFG HMS
DRUM SERVO
DRUM PWM
DRUM FG
DRUM PG
CAP PWM
CAP FG
ATF ERROR
REF PILOT
CAPSTAN SERVO
DRUM ON
DRUM FWD/RVS
CAP ON
CAP FWD/RVS
JACK MONO
PB1.7M DET
MIC MONO
AUDIO MUTE
MX ON/OFF
MX SEL 1
MX SEL 2
MONO REC
LINE MIX
SP/LP DET
CLOG DET
DEW DETECT
TAPE TOP DETECT
TAPE END DETECT
S REEL FG AMP
T REEL FG AMP
Q201
LED DRIVE
ATT
PB SP/LP DETECT
CLOG DETECT
CR PULSE DETECT
RF DETECT
GCA
INTEGRATOR
RF CONT
PB IC202 37 Pin
PB IC202 46 Pin
CN203
CN202
CN201
CN304
CN305 (1/2)
CN305 (2/2)
AUDIO (EZ-12P)
AUDIO (AU-154P)
MOTOR 5V
LANC DC
LANC SIG
LI 3V
CN651
FOR CHECK
DPWM
CPWM
LPF
PROTECT
DERR
CERR
DRUM ERROR
CAP ERROR
CN205
Q351
LIMITER LPF
SHORT CIRCUIT PROTECT
POWER ON/OFF
V REF
SWITCHING DRIVE
Q352 SWITCHING
Q353 SWITCHING
MOTOR UNREG (CN351 ③)
TRIANGLE (IC351 ⑰)
5V (Q356)
L355
L356
L357
W352 (1/2)
W352 (2/2)
REC/PB Q352 1 Pin
REC/PB W352 11 Pin
REC/PB Q352 4 Pin
PB W352 10 Pin
REC/PB Q353 1 Pin
REC/PB Q353 4 Pin
LED SWITCH
Q363,364
ZOOM SW
RV301
KEY AD 0
KEY AD 1
CN354
CN001
S007
S006
REC
DRUM VS
CAP VS
CN204
DON
REF
RST
STBY
DDIR
SL204
(DRUM) FG
VTR UNREG
H1(+)
H1(−)
H2(+)
H2(−)
H3(+)
H3(−)
CON
CDIR
SL202 (CAP FG)
CFG
RP PB
REC PB
REFP
REF PILOT
BUFFER
LPF 2 (SCF)
SCF CLOCK
SCF CLOCK GENERATOR
(11.7MHz)
CK IN
VIDEO (REC/PB) AMP
REC ATF
REC P
PB RF
LPF1 (SCF)
PRE AMP
GAIN MNT
PILOT CONT
BALANCED MODULATOR
16KHz BPF (SCF)
46KHz BPF (SCF)
FH DET
V REF
ERR
AERR
REC IC202 18 Pin
PB IC202 7 Pin
PB IC202 6 Pin
PB IC202 13 Pin
1/2 RF SWP
RF SWP
CAP FG
CN002
FOR CHECK


MD FL-MECHA
M903 LOADING MOTOR
MODE SWITCH
DEW SENSOR
Q992 TAPE END SENSOR
TAPE TOP SENSOR
S REEL FG SENSOR
T REEL FG SENSOR
ME / MP
Hi8 MP
REC PROOF
CASSETTE COMPARTMENT LOCK
VC-137P BOARD (6/6) (SERVO)
(See Page 76,90,93,97,101,106)
IC205 (1/2)
LPF
DPWM
CPWM
LPF
PROTECT
ATT
0.16V
DERR
CERR
CN205
DRUM ERROR
CAP ERROR
DV-25P BOARD (1/2) (See Page 137)
REC/PB Q352 1 Pin
750mVp-p
2.16µs
ZOOM SW
RV301
D 5V
LED SWITCH
Q363,364
CN354
W352 (2/2)
LED ON
KAD 0
KAD 1
KEY AD 0
KEY AD 1
REC/PB W352 11 Pin
42mVp-p
IC352
CAPSTAN/DRUM PWM DRIVE
SHORT CIRCUIT PROTECT
POWER ON/OFF
V REF
5V (Q356)
TRIANGLE (IC351 ⑰)
SWITCHING DRIVE
MOTOR UNREG (CN351 ③)
L355
Vcc
Q352 SWITCHING
Q353 SWITCHING
L356
L357
Q351
LIMITER LPF
W352 (1/2)
REC/PB Q352 4 Pin
8Vp-p
PB W352 10 Pin
136mVp-p
REC/PB Q353 1 Pin
REC/PB Q353 4 Pin
FK-3700 BLOCK
(See Page 140)
CN001
REC
S007
S006
E MODEL
S001 □ STOP
S004 FF
S003 ▷ PLAY
S010 EDITSEARCH (−)
S005 PAUSE
S002 REW
S008 DATESEARCH
S009 EDITSEARCH (+)
LED 5V
D001 − D011 (BACK LIGHT)
DRUM VS
CAP VS
CN204
PB/REC IC205 13 Pin
140mVp-p
IC205 16 Pin
1.2Vp-p
4.4ms
SS 5V
IC205 (1/2)
DRUM MOTOR DRIVE
DRUM COM (M901)
Vcc2
Vcc1
VS
COM
DON
REF
OVER-HEAT PROTECT
ROTER POSITION DETECT
U IN
V IN
W IN
RST
STBY
START CONTROL
TIMING CONTROL
SOFT SWITCHING DRIVE
OUTPUT DRIVE BUFFER
OUTPUT DRIVE
DDIR
DIR
I COM
SL201
R257 ~ 259 (DRUM DRIVE CURRENT SENS)
REC/PB IC205 15 Pin
30mVp-p
IC203 (1/2) (DRUM I COM)
SL204
(DRUM FG)
DFG
WAVE SHAPER
LPF
2V
DPG
WAVE SHAPER
REC/PB IC203 18 Pin
55mVp-p
4.5ms
CN206
DRUM U
DRUM V
DRUM W
FG/PG COM
D PG
MD FL-MECHA
M901 DRUM MOTOR
FG
PG
IC204 (1/2)
CAPSTAN MOTOR DRIVE
VTR UNREG
H1(+)
H1(−)
H2(+)
H2(−)
H3(+)
H3(−)
U IN 1
U IN 2
V IN 1
V IN 2
W IN 1
W IN 2
120° LOGIC
CON
STBY
POWER OFF
HE POWER
VH+
VH−
CDIR
FRC
CN207
CAP U
CAP V
CAP W
C HALL Vcc
C HALL GND
M902 CAPSTAN MOTOR
CAPSTAN FG
CFG Vcc
C FG (+)
C FG GND
CFG (−)
REC/PB IC204 22,23 Pin
50mVp-p
0.88ms
IC204 (1/2)
SL202 (CAP FG)
CFG
CAPSTAN FG WAVE SHAPER
OFST
REC/PB IC204 27 Pin
5.0Vp-p
0.88ms
CN305
CN304
JACK MONO
AUDIO (EZ-12P)
PB 1.7M DET
MIC MONO
VA PB MODE
CAM/LINE
RF SWP
SP/LP
AUDIO MUTE
MX ON/OFF
MX SEL 1
MX SEL 2
MONO
LINE MIX
IN/OUT
AUDIO (AU-154P)
IC202 (1/2)
ATF SERVO
RP PB
REC PB
REFP
REF PILOT
SCF CLOCK
VIDEO (REC/PB AMP)
REC ATF
REC P
BUFFER
LPF 2 (SCF)
PB RF
LPF 1 (SCF)
PRE AMP
GAIN WNT
PILOT CONT
BALANCED MODULATOR
16KHz BPF (SCF)
46KHz BPF (SCF)
LPF
FH DET
BUFFER
V REF
ERR
SCF CLOCK GENERATOR
(11.7MHz)
CK IN
AERR
REC IC202 18 Pin
1.2Vp-p
PB IC202 7 Pin
0.8Vp-p
PB IC202 6 Pin
1.1Vp-p
PB IC202 13 Pin
1.2Vp-p
67ms
FOR CHECK
1/2 RF SWP
RF SWP
CAP FG
CN002

3-6. EVF BLOCK DIAGRAM

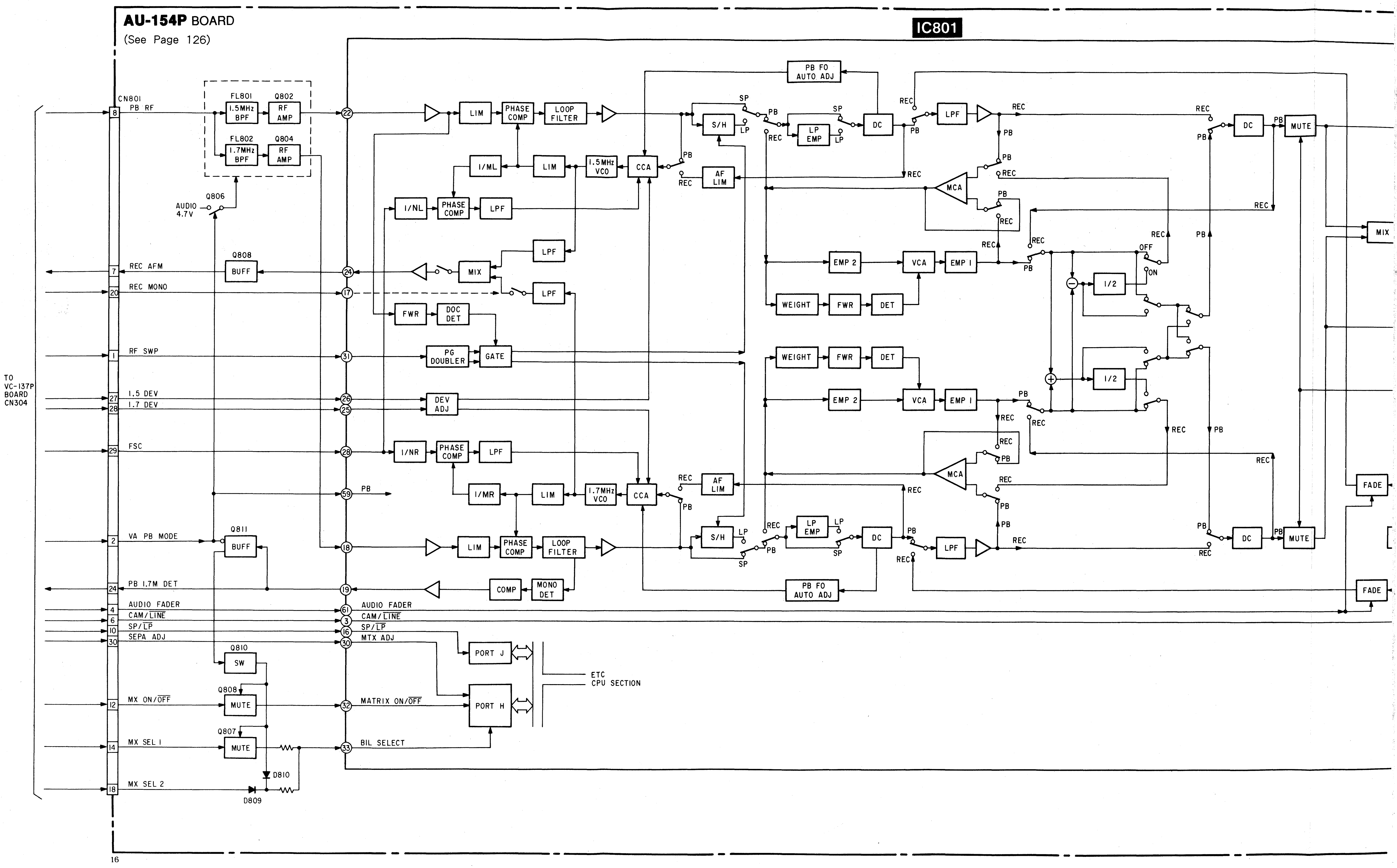

VF-62P BOARD (See Page 119)
SYSTEM CONTROL (VC-137P)
TALLY LED
POWER (VC-137P)
EVF 5V
15V
EVF UNREG
VIDEO(1) (VC-137P)
EVF OUT
CN951
D952 TALLY
IC954
13.5V/12V REG
Vcc
IC955
BUFF
Vcc
RV954 COLOR
RV953 BRIGHT
REC CN955 1 Pin
1H
15V
REC Q953 D Pin
128Vp-p
1H
IC951
DC/AC CONVERTER
Vcc1
Vcc2
PWM COMP
SWITCHING DRIVE
CURRENT ERROR AMP
PROTECT DET
TRIANGLE OSC
VREF (2.5V)
CT
SYNC
Q953 SWITCHING DRIVER
T951
D951(1/3)
RECT
D951(1/3)
RECT
RV951
CURRENT COMSUMPTION
D951(1/3)
BACK LIGH
DRIVE CURRE
SENSOR

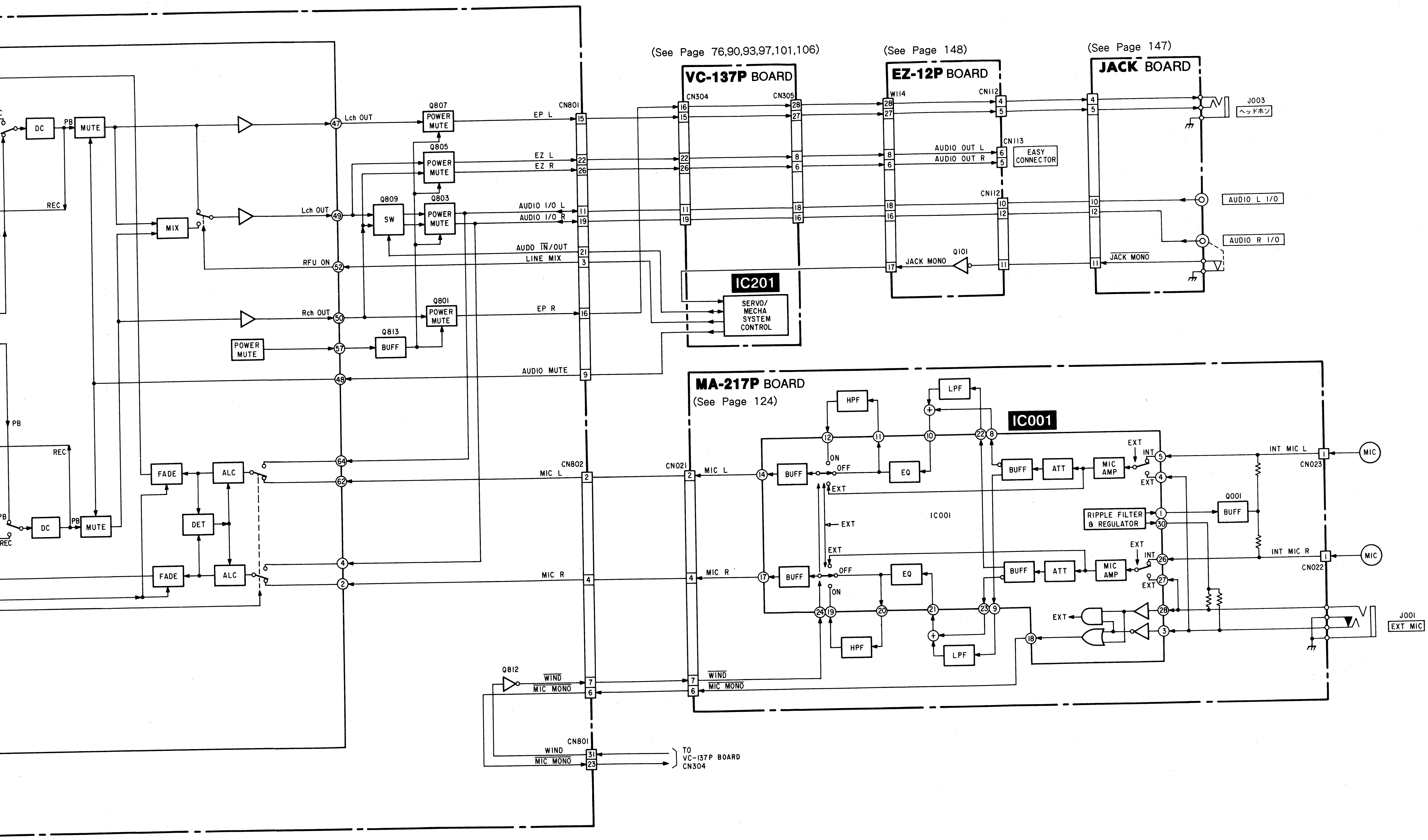

VF-61P BOARD
(See Page 121)
IC801
R.G.B DECODER
IC802
LCD DRIVE
IC803
LCD TIMING GENERATOR
IC954
13.5V/12V REG
IC955
BUFF
FF-77P BOARD
(See Page 120)
CN953
CN803
CN955
CN954
CN801
FOR CHECK
EVF 5V
13.5V
12V
EVF OUT
COLOR
BRIGHT
SYNC
SEL FR
PCO
B OUT
R OUT
G OUT
LC COM
15V
Vcc
RV954
COLOR
RV953
BRIGHT
REC CN955 1 Pin
430Vp-p
1H
T951
D951(1/3)
RECT
Q953
SWITCHING
DRIVER
RV951
CURRENT
CONSUMPTION
D954
R980
BACK LIGHT
DRIVE CURRENT
SENSOR
HIGH
LOW
BL951
BACK
LIGHT
128Vp-p
4.43MHz
TRAP
SYNC
SEP
PULSE
GEN.
BLK
CSY
BF
C ADJ
ACC
ACC
DET
BURST
GATE
ACK
DET
ACK
CHROMA
AMP
ADD/SUB
AMP
DEMO
R-Y
B-Y
Y/C
MIX
SHP
CLAMP
SYNC
SLICE
PAL
DET
PAL
AMP
SIG
AMP
PEDESTAL
CLAMP
PAL ID
DET
FF
INV
DL
AMP
PHASE
SHIFT
HUE
APC
DET
VXO
SC OUT
X801
4.43MHz
0.75Vp-p
IC801 ㉔ REC/PB
0.3Vp-p
IC801 ㉜ REC/PB
0.64Vp-p
IC801 ③ REC/PB
Vcc1
Vcc2
C SY
3.58MHz
TRAP
CLP
S/H
BRT
GAMMA
AMP
BUFF
SUB BRT CONT
GAIN
CONT
V
COM
R OUT
G OUT
B OUT
RV803
WHITE
BALANCE
B
RV802
WHITE
BALANCE
R
R
BRT
G
BRT
RGB
BRT
SHR
SHB
SHG
SH3
SH2
SH1
GAMMA
B
GAIN
R
GAIN
RGB
GAIN
FRP
V COM
OUT
RV801
GAIN
CONT
5V
8.4Vp-p
IC802 ⑧ REC/PB
IC802 ⑩ REC/PB
IC802 ⑥ REC/
LPF
BUFFER
Q801
R861
R862
X CLP
SLFR
HD
SYNC
H SYNC
DETECTER
H-SKEW
DETECTER
HALF-H
KILLER
PLL PHASE
COMPARATOR
PLL
COUNTER
FIELD &
LINE
CONTROL
H
TIMING
PULSE
GENERATOR
V SYNC
SEPARATOR
(NOISE
SHAPER)
V
TIMING
PULSE
GENERATOR
HCK1
HCK2
HST1
VCK2
VCK1
VST1
CLR
VDD1
VDD2
RPD
CKI
CKO
MASTER CK
D801
RV804
VCO
12V
13.5V
Q802
12Vp-p
0.6μsec
IC803 ㉒㉓ REC/PB
11.8Vp-p
IC803 ⑱ REC/PB
2H
IC803 ⑲⑳ REC/PB
IC803 ㉑ REC/PB



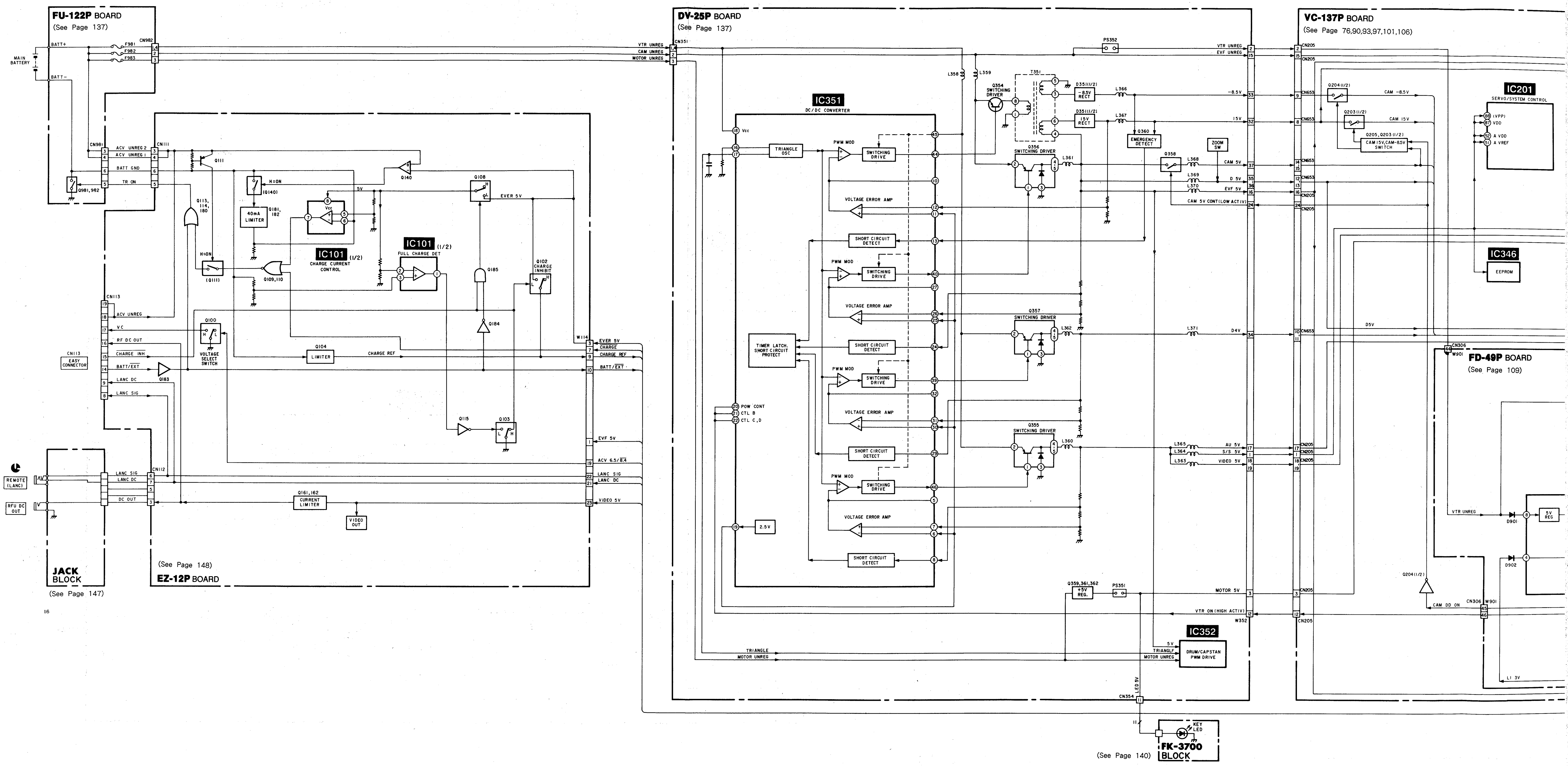
1P BOARD
Page 121)
IC801
R.G.B DECODER
0.75Vp-p
IC801 (24) REC/PB
4.43MHz TRAP
SYNC SEP
PULSE GEN.
BLK
CSY
BF
C ADJ
ACC
ACC DET
BURST GATE
BLK
ACK
ACK DET
CHROMA AMP
ADD/SUB AMP
DEMO
R-Y
B-Y
Y/C MIX
DL AMP
PAL ID DET
FF
INV
PHASE SHIFT
HUE
APC DET
VXO
SC OUT
0.3Vp-p
IC801 (32) REC/PB
SHP
CLAMP
SYNC SLICE
PAL DET
PAL AMP
SIG AMP
PEDESTAL CLAMP
Y
Vcc1
Vcc2
C SY
EVF 5V
X801
4.43MHz
0.64Vp-p
4.43MHz
IC801 (3) REC/PB
IC802
LCD DRIVE
EVF 5V
Vcc1
3.58MHz TRAP
CLP
S/H
BRT
GAMMA
AMP
BUFF
R OUT
G OUT
B OUT
RV803 WHITE BALANCE B
RV802 WHITE BALANCE R
R BRT
G BRT
RGB BRT
SUB BRT CONT
Vcc2
12V
IC802 (10) REC/PB
8.4Vp-p
GAIN CONT
V COM
V COM OUT
BF
SHR
SHB
SHG
SH3
SH2
SH1
BRT
GAMMA
B GAIN
R GAIN
RGB GAIN
FRP
RV801 GAIN CONT
5V
8.4Vp-p
IC802 (8) REC/PB
LPF
BUFFER
Q801
R861
R862
CN802
LCD PANEL
COLOR LIQUID CRYSTAL DISPLAY
8Vp-p
IC802 (6) REC/PB
IC803
LCD TIMING GENERATOR
SLFR
HD
SYNC
X CLP
H SYNC DETECTER
H-SKEW DETECTER
HALF-H KILLER
PLL COUNTER
PLL PHASE COMPARATOR
FIELD & LINE CONTROL
H TIMING PULSE GENERATOR
V SYNC SEPARATOR (NOISE SHAPER)
V TIMING PULSE GENERATOR
HCK1
HCK2
HST1
VCK2
VCK1
VST1
CLR
12Vp-p
0.6μsec
IC803 (22)(23) REC/PB
HCK1
HCK2
HST
VCK2
VCK1
VST
H VDD
V VDD
12V
13.5V
Q802
EVF 5V
VDD1
VDD2
RPD
LPF
CK1
CKO
MASTER CK
D801
RV804 VCO
12V
11.8Vp-p
IC803 (18) REC/PB
11.8Vpp
2H
IC803 (19)(20) REC/PB
12Vp-p
IC803 (21) REC/PB

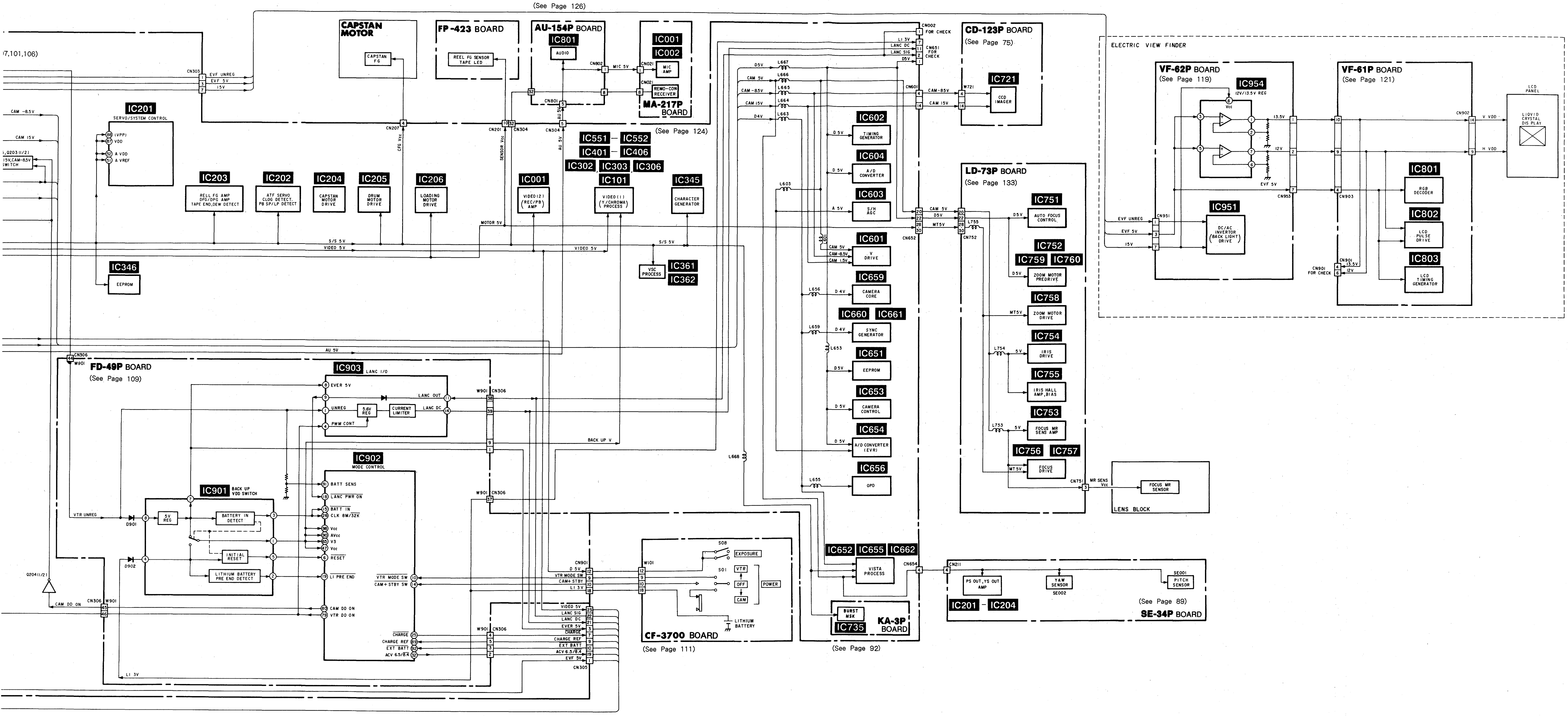
3-7. AUDIO BLOCK DIAGRAM


AU-154P BOARD
(See Page 126)
IC801
CN801
PB RF
REC AFM
REC MONO
RF SWP
1.5 DEV
1.7 DEV
FSC
VA PB MODE
PB 1.7M DET
AUDIO FADER
CAM/LINE
SP/LP
SEPA ADJ
MX ON/OFF
MX SEL 1
MX SEL 2
TO
VC-137P
BOARD
CN304
FL801
1.5MHz BPF
Q802
RF AMP
FL802
1.7MHz BPF
Q804
RF AMP
Q806
AUDIO 4.7V
Q808
BUFF
Q811
BUFF
Q810
SW
Q808
MUTE
Q807
MUTE
D810
D809
PB
AUDIO FADER
CAM/LINE
SP/LP
MTX ADJ
MATRIX ON/OFF
BIL SELECT
PORT J
PORT H
ETC
CPU SECTION
LIM
PHASE COMP
LOOP FILTER
I/ML
1.5MHz VCO
CCA
I/NL
LPF
MIX
FWR
DOC DET
PG DOUBLER
GATE
DEV ADJ
I/NR
I/MR
1.7MHz VCO
COMP
MONO DET
S/H
AF LIM
LP EMP
DC
PB FO AUTO ADJ
MCA
EMP 2
VCA
EMP 1
WEIGHT
DET
1/2
OFF
ON
MUTE
FADE
SP
LP
REC
PB
22
24
17
31
26
25
28
59
18
19
61
3
16
30
32
33
8
7
20
1
27
28
29
2
24
4
6
10
30
12
14
18
16

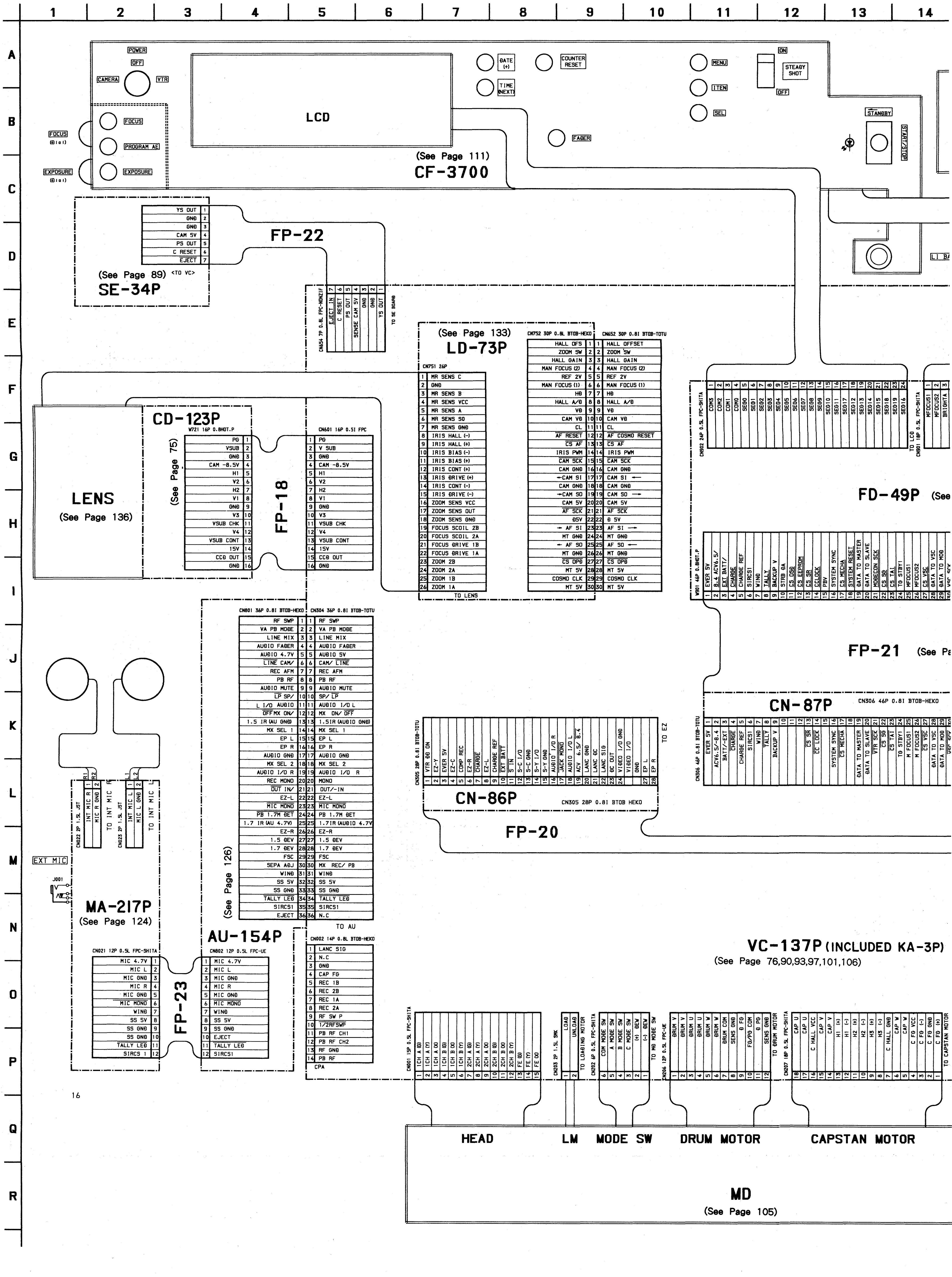

(See Page 76,90,93,97,101,106)
VC-137P BOARD
(See Page 148)
EZ-12P BOARD
(See Page 147)
JACK BOARD
CN304
CN305
W114
CN112
CN113
EASY CONNECTOR
AUDIO OUT L
AUDIO OUT R
J003
ヘッドホン
AUDIO L I/O
AUDIO R I/O
JACK MONO
Q101
IC201
SERVO/ MECHA SYSTEM CONTROL
DC
PB
MUTE
REC
MIX
Lch OUT
Q807
POWER MUTE
Q805
Q803
Q809
SW
Q801
Q813
BUFF
POWER MUTE
Rch OUT
RFU ON
CN801
EP L
EZ L
EZ R
AUDIO I/O L
AUDIO I/O R
AUDO IN/OUT
LINE MIX
EP R
AUDIO MUTE
FADE
ALC
DET
CN802
MIC L
MIC R
Q812
WIND
MIC MONO
TO VC-137P BOARD CN304
MA-217P BOARD
(See Page 124)
CN021
IC001
HPF
LPF
EQ
BUFF
ON
OFF
EXT
INT
ATT
MIC AMP
RIPPLE FILTER & REGULATOR
Q001
INT MIC L
INT MIC R
CN023
CN022
MIC
J001
EXT MIC

3-8. POWER BLOCK DIAGRAM

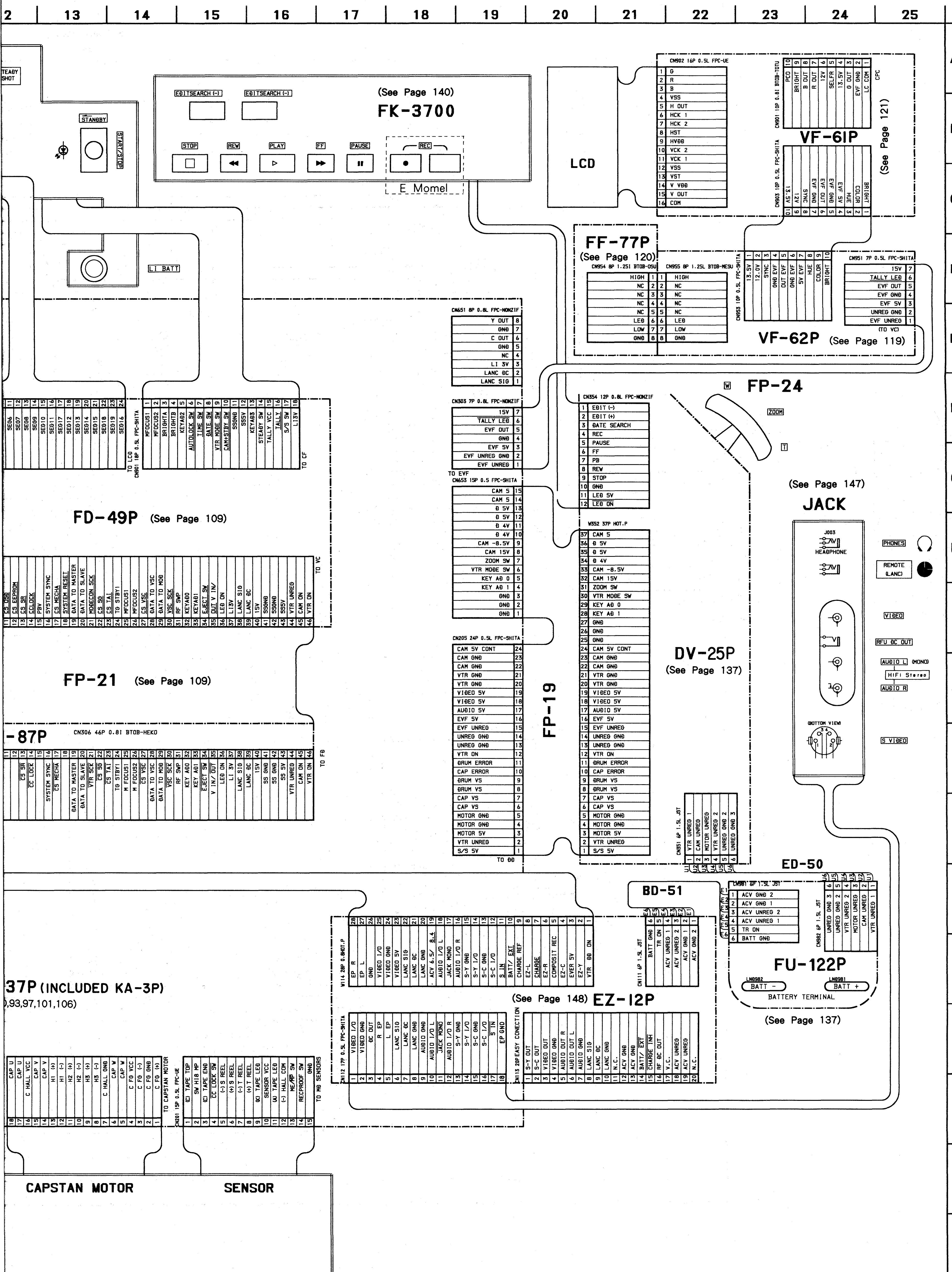

FU-122P BOARD
(See Page 137)
MAIN BATTERY
BATT+
BATT−
F981
F982
F983
CN982
CN981
ACV UNREG 2
ACV UNREG 1
BATT GND
TR ON
Q981,982
CN111
Q111
Q113,114,180
H:ON
(Q140)
Q181,182
40mA LIMITER
IC101 (1/2)
CHARGE CURRENT CONTROL
IC101 (1/2)
FULL CHARGE DET
Q140
Q108
EVER 5V
Q102 CHARGE INHIBIT
Q185
Q184
Q109,110
(Q111)
CN113
ACV UNREG
VC
RF DC OUT
CHARGE INH
BATT/EXT
LANC DC
LANC SIG
EASY CONNECTOR
Q100
VOLTAGE SELECT SWITCH
Q183
Q104
LIMITER
CHARGE REF
Q115
Q103
W114
CHARGE
EVF 5V
ACV 6.5/8.4
VIDEO 5V
REMOTE (LANC)
RFU DC OUT
CN112
DC OUT
Q161,162
CURRENT LIMITER
VIDEO OUT
JACK BLOCK
(See Page 147)
(See Page 148)
EZ-12P BOARD
DV-25P BOARD
(See Page 137)
CN351
VTR UNREG
CAM UNREG
MOTOR UNREG
IC351
DC/DC CONVERTER
Vcc
TRIANGLE OSC
PWM MOD
SWITCHING DRIVE
VOLTAGE ERROR AMP
SHORT CIRCUIT DETECT
TIMER LATCH, SHORT CIRCUIT PROTECT
POW CONT
CTL B
CTL C,D
2.5V
PS352
L358
L359
Q354 SWITCHING DRIVER
T351
D351(1/2) −8.5V RECT
D351(1/2) 15V RECT
L366
L367
Q360
EMERGENCY DETECT
Q356 SWITCHING DRIVER
L361
Q358
L368
L369
L370
ZOOM SW
CAM 5V
D 5V
EVF 5V
CAM 5V CONT(LOW ACTIV)
−8.5V
15V
Q357 SWITCHING DRIVER
L362
L371
D4V
Q355 SWITCHING DRIVER
L360
L365
L364
L363
AU 5V
S/S 5V
VIDEO 5V
Q359,361,362 +5V REG.
PS351
MOTOR 5V
VTR ON (HIGH ACTIV)
W352
IC352
DRUM/CAPSTAN PWM DRIVE
TRIANGLE
LED 5V
CN354
KEY LED
FK-3700 BLOCK
(See Page 140)
VC-137P BOARD
(See Page 76,90,93,97,101,106)
CN205
CN653
Q204(1/2)
Q203(1/2)
Q205,Q203(1/2)
CAM 15V,CAM−8.5V SWITCH
CAM −8.5V
CAM 15V
IC201
SERVO/SYSTEM CONTROL
(VPP)
VDD
A VDD
A VREF
IC346
EEPROM
D5V
CN306
W901
FD-49P BOARD
(See Page 109)
VTR UNREG
D901
D902
5V REG
Q204(1/2)
CAM DD ON
L1 3V


(See Page 126)
7,101,106)
CAPSTAN MOTOR
CAPSTAN FG
FP-423 BOARD
REEL FG SENSOR TAPE LED
AU-154P BOARD
IC801
AUDIO
CN802
MIC 5V
CN021
MIC AMP
REMO-CON RECEIVER
IC001
IC002
MA-217P BOARD
CN801
(See Page 124)
CN303
EVF UNREG
EVF 5V
15V
CAM -8.5V
CAM 15V
Q203 (1/2)
15V,CAM-8.5V SWITCH
IC201
SERVO/SYSTEM CONTROL
(VPP)
VDD
A VDD
A VREF
CN207
CFG Vcc
CN201
SENSOR Vcc
CN304
AU 5V
IC551 - IC552
IC401 - IC406
IC302, IC303, IC306
IC101
VIDEO (1) (Y/CHROMA PROCESS)
IC203
RELL FG AMP DFG/DPG AMP TAPE END,DEW DETECT
IC202
ATF SERVO CLOG DETECT. PB SP/LP DETECT
IC204
CAPSTAN MOTOR DRIVE
IC205
DRUM MOTOR DRIVE
IC206
LOADING MOTOR DRIVE
IC001
VIDEO (2) (REC/PB AMP)
IC345
CHARACTER GENERATOR
MOTOR 5V
S/S 5V
VIDEO 5V
VSC PROCESS
IC361
IC362
IC346
EEPROM
AU 5V
CN306
W901
FD-49P BOARD
(See Page 109)
IC903
LANC I/O
EVER 5V
LANC OUT
UNREG
5.6V REG
CURRENT LIMITER
LANC DC
PWM CONT
BACK UP V
IC902
MODE CONTROL
BATT SENS
LANC PWR ON
BATT IN
CLK 8M/32K
Vcc
AVcc
V3
Vcc
RESET
LI PRE END
VTR MODE SW
CAM+STBY SW
CAM DD ON
VTR DD ON
CHARGE
CHARGE REF
EXT BATT
ACV 6.5/8.4
IC901
BACK UP VDD SWITCH
VTR UNREG
D901
5V REG
BATTERY IN DETECT
INITIAL RESET
D902
LITHIUM BATTERY PRE END DETECT
Q204 (1/2)
CAM DD ON
LI 3V
CN901
D 5V
VTR MODE SW
CAM+ STBY
LI 3V
VIDEO 5V
LANC SIG
LANC DC
EVER 5V
CHARGE
CHARGE REF
EXT BATT
ACV 6.5/8.4
EVF 5V
CN305
W101
S08
EXPOSURE
S01
VTR
OFF
CAM
POWER
LITHIUM BATTERY
CF-3700 BOARD
(See Page 111)
L668
CN002
FOR CHECK
LI 3V
LANC DC
LANC SIG
D5V
CN651 FOR CHECK
D5V
L667
CAM 5V
L666
CAM -8.5V
L665
CAM 15V
L664
D4V
L663
CN601
CAM -85V
CAM 15V
W721
CD-123P BOARD
(See Page 75)
IC721
CCD IMAGER
IC602
TIMING GENERATOR
IC604
A/D CONVERTER
L603
IC603
S/H AGC
A 5V
L601
IC601
V DRIVE
CAM 5V
CAM -8.5V
CAM 1.5V
IC659
CAMERA CORE
L656
D 4V
IC660
IC661
SYNC GENERATOR
L659
L653
IC651
EEPROM
IC653
CAMERA CONTROL
IC654
A/D CONVERTER (EVR)
IC656
OPD
L655
IC652
IC655
IC662
VISTA PROCESS
CN654
BURST MSK
IC735
KA-3P BOARD
(See Page 92)
CN652
CAM 5V
D5V
MT5V
CN752
L755
LD-73P BOARD
(See Page 133)
IC751
AUTO FOCUS CONTROL
IC752
IC759
IC760
ZOOM MOTOR PREDRIVE
IC758
ZOOM MOTOR DRIVE
IC754
IRIS DRIVE
L754
IC755
IRIS HALL AMP,BIAS
IC753
FOCUS MR SENS AMP
L753
IC756
IC757
FOCUS DRIVE
CN751
MR SENS Vcc
FOCUS MR SENSOR
LENS BLOCK
CN211
PS OUT,YS OUT AMP
YAW SENSOR
SE002
SE001
PITCH SENSOR
IC201 - IC204
(See Page 89)
SE-34P BOARD
ELECTRIC VIEW FINDER
VF-62P BOARD
(See Page 119)
IC954
12V/13.5V REG
Vcc
13.5V
12V
EVF 5V
CN953
CN951
EVF UNREG
EVF 5V
15V
IC951
DC/AC INVERTOR (BACK LIGHT DRIVE)
VF-61P BOARD
(See Page 121)
CN903
CN901 FOR CHECK
13.5V
12V
IC801
RGB DECODER
IC802
LCD PULSE DRIVE
IC803
LCD TIMING GENERATOR
CN902
V VDD
H VDD
LCD PANEL
LIQVID CRYSTAL DIS PLAY

SECTION 4
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS
4-1. FRAME SCHEMATIC DIAGRAMS



LCD
(See Page 111)
CF-3700
POWER
OFF
CAMERA
VTR
FOCUS
PROGRAM AE
EXPOSURE
DATE (+)
TIME (NEXT)
COUNTER RESET
FADER
MENU
ITEM
SEL
ON
STEADY SHOT
OFF
STANDBY
START/STOP
(See Page 89) <TO VC>
SE-34P
FP-22
(See Page 133)
LD-73P
CD-123P
(See Page 75)
FP-18
LENS
(See Page 136)
FD-49P
FP-21
CN-87P
CN-86P
FP-20
EXT MIC
MA-217P
(See Page 124)
FP-23
AU-154P
(See Page 126)
TO AU
VC-137P (INCLUDED KA-3P)
(See Page 76,90,93,97,101,106)
HEAD
LM
MODE SW
DRUM MOTOR
CAPSTAN MOTOR
MD
(See Page 105)
TO LENS
TO EZ



12
13
14
15
16
17
18
19
20
21
22
23
24
25
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
R
(See Page 140)
FK-3700
EDITSEARCH (-)
EDITSEARCH (+)
STOP
REW
PLAY
FF
PAUSE
REC
E Momel
STANDBY
START/STOP
LI BATT
LCD
VF-61P
(See Page 121)
FF-77P
(See Page 120)
VF-62P (See Page 119)
FP-24
ZOOM
(See Page 147)
JACK
HEADPHONE
PHONES
REMOTE (LANC)
VIDEO
RFU DC OUT
AUDIO L (MONO)
HiFi Stereo
AUDIO R
S VIDEO
BOTTOM VIEW
FD-49P (See Page 109)
FP-21 (See Page 109)
-87P
FP-19
DV-25P
(See Page 137)
ED-50
BD-51
FU-122P
BATT -
BATT +
BATTERY TERMINAL
(See Page 137)
37P (INCLUDED KA-3P)
),93,97,101,106)
(See Page 148) EZ-12P
CAPSTAN MOTOR
SENSOR
TO LCD
TO CF
TO VC
TO FD
TO EVF
TO DD
TO MD SENSORS
TO CAPSTAN MOTOR

4-2. PRINTED V

THIS NOTE IS
(In addition to t

- **For printed v**
- ○— : indicate
- —— : indicate
- ■ : Parts m
- ▨ : Pattern
  which e

(The other laye

- Circled number
- (B) or (F), (
  characteristics.
- ● : Throug

* Caution:

A side :
(Conductor Side

B side :
(Component sid

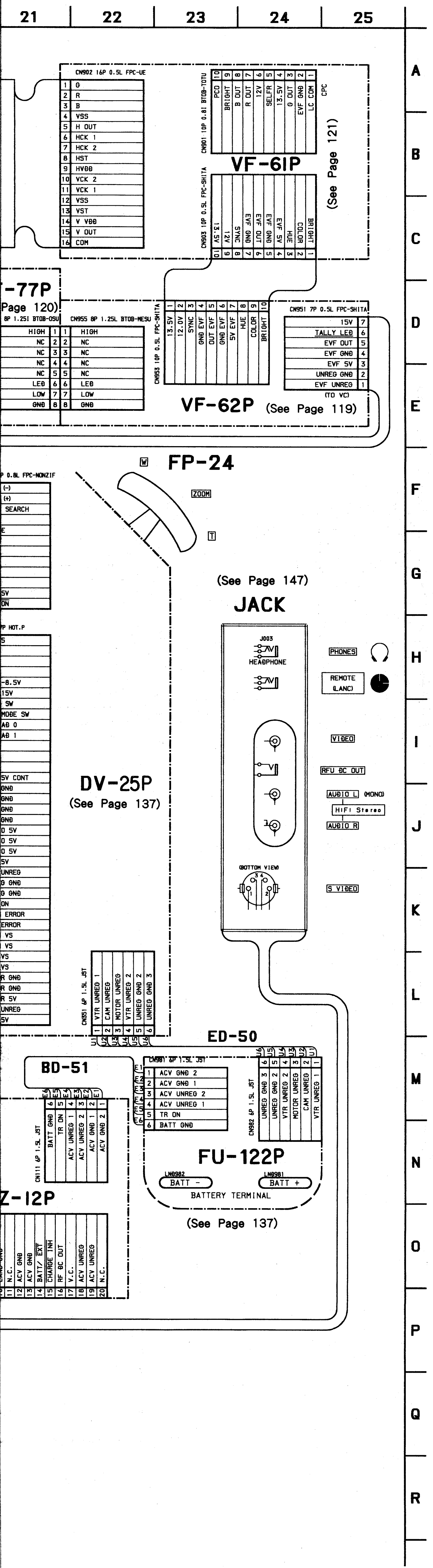
Four types of prin
for the above co
manual (those wit

- **For schemat**
- Caution when r
  New parts mus
  Be careful not
  because it is da
- All resistors are
  Chip resistor a
  kΩ : 1000Ω , M
- All capacitors a
  50V or less
  tantalums.
- All variable and
  unless otherwis
- : nonflar
- : fus
- ☐ : panel d
- △ : interna
- ☐ : adjustr
- —— : B+ Lin
- - - - : B– Lin
- : IN/OUT

The components
⚠ or dotted line
critical for safety
Replace only wit
specified.

When indicatin
ence number, p
board name.

*: indicated by th


21
22
23
24
25
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
R
VF-61P
(See Page 121)
-77P
Page 120)
VF-62P (See Page 119)
FP-24
ZOOM
(See Page 147)
JACK
PHONES
REMOTE (LANC)
VIDEO
RFU DC OUT
AUDIO L (MONO)
HiFi Stereo
AUDIO R
S VIDEO
DV-25P
(See Page 137)
ED-50
BD-51
FU-122P
BATTERY TERMINAL
(See Page 137)
Z-12P

4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.

(In addition to this , the necessary note is printed in each block.)

- **For printed wiring boards.**
- ○— : indicated a lead wire mounted on the component side.
- —— : indicated a lead wire mounted on the conductor side.
- ■ : Parts mounted on the conductor side.
- ▨ : Pattern from the side which enables seeing.

(The other layers'patterns are not indicated.)

- Circled numbers refer to waveforms.
- (B) or (F), etc. of capacitors indicate the temperature characteristics.
- ● : Through hole is omitted.

* Caution:

A side : (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
B side : (Component side)	Parts on the parts face side seen from the parts face are indicated.

Four types of printed wiring board diagrams have been provided for the above conductor and component sides in this service manual (those with patterns and those without).

- **For schematic diagrams.**
- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minuts side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/16W unless otherwise noted.
  Chip resistor are 1/16W unless otherwise noted.
  kΩ : 1000Ω , MΩ : 1000kΩ .
- All capacitors are in μF unless otherwise noted. pF: μμF.
  50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- : nonflammable resistor.
- : fusible resistor.
- □ : panel designation.
- △ : internal component.
- □ : adjustment for repeair.*
- —— : B+ Line.*
- - - - : B– Line.*
- ⇨ : IN/OUT direction of (+, –) B LINE.*

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

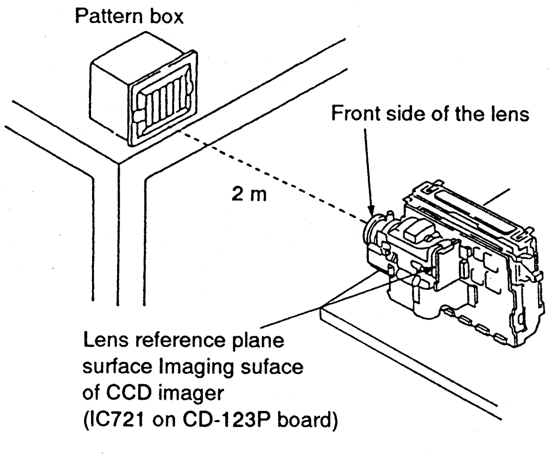
*: indicated by the color red.

- **Measuring conditions voltage value and waveform.**

(CAMERA block)

- The object is color bar chart of pattern box.
- Voltages are dc between ground and measurement points.*
  Readings are taken with a digital multimeter (DC 10MΩ).*
- Voltage variations may be noted due to normal production tolerances.*

1. Connection


Pattern box
Front side of the lens
2 m
Lens reference plane
surface Imaging suface
of CCD imager
(IC721 on CD-123P board)

2. Adjust the distance so that the output waveform of Fig. a and the Fig. b can be obtain.

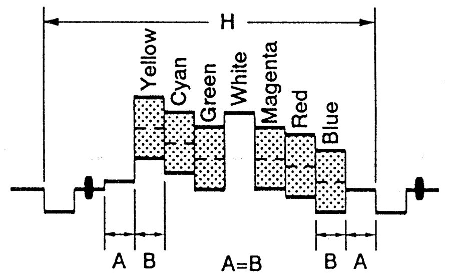

H
Yellow
Cyan
Green
White
Magenta
Red
Blue
A
B
A=B
B
A

Fig. a (Video output terminal output waveform)

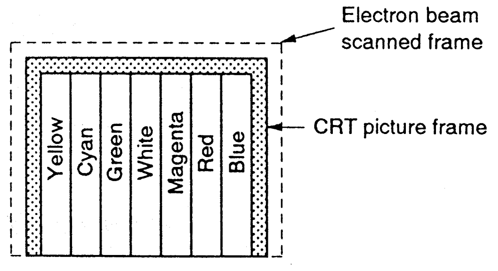

Electron beam
scanned frame
CRT picture frame
Yellow
Cyan
Green
White
Magenta
Red
Blue

Fig. (Picture on monitor TV)

(VIDEO, SERVO/SYSTEM CONTROL, AUDIO, VIEW FINDER block)

- Voltages are dc between ground and measurement points.*
- Readings are taken with a color-bar signal input.*
- Readings are taken with a digital multimeter (DC10MΩ).*
- Voltage variations may be noted due to normal production tolerances.*

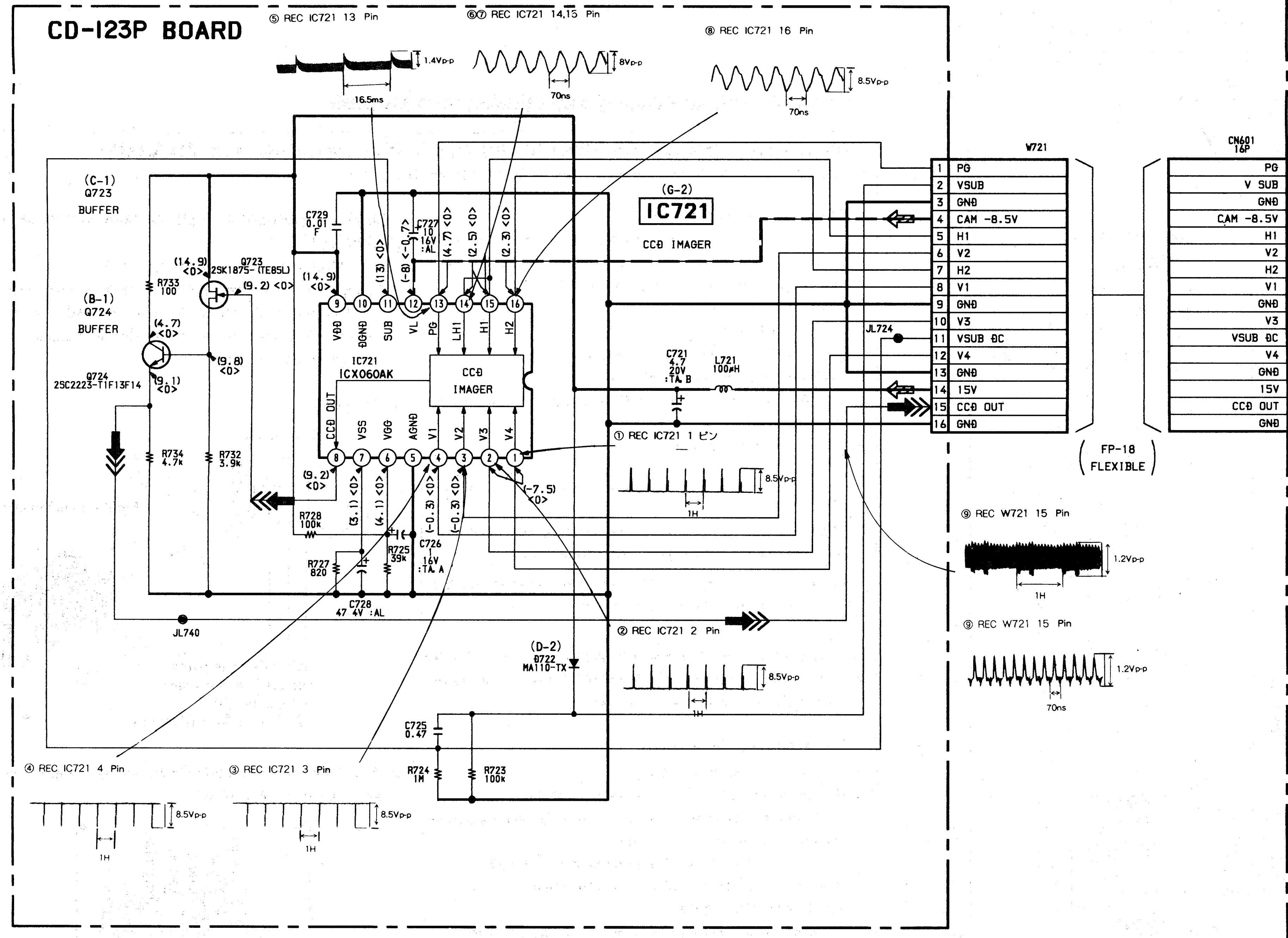
CD-123P (CCD IMAGER), VC-137P (CAMERA 1:SIGNAL SEPARATION) SCHEMATIC DIAGRAM • See page 84 for Printed Wiring Board on CD-123P board.

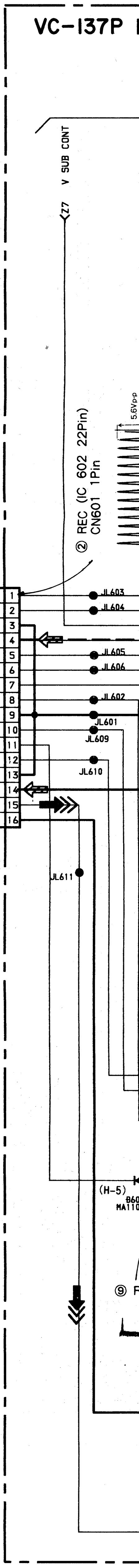
– Ref. No. CD-123P BOARD : 1,000 Series, VC-137P BOARD : 2,000 Series –

Precautions Upon Replacing CCD Imager

- Some CCD imagers (IC721 of CD-123P board) of this unit require the correction data.
  The correction data has been input to page F, addresses 1F to 2E of the camera EEPROM (IC651 of VC-137P board). Moreover, the same data has also been input as backup data to page D, addresses E0 to EF of the VTR EEPROM (IC346 of VC-137P board).
  This correction data is not required for CCD imagers which are provided for repairs. Therefore, input 00 to page F, addresses 1F to 2E of the camera EEPROM. And input 00 to page D, addresses E0 to EF of VTR EEPROM. For details of inputting, refer to "Camera Adjustments".
- The CD-123P board mounted as a repair part is not equipped with a CCD imager.
  When replacing this board, remove the CCD imager from the old one and mount it onto the new one.
- If the CCD imager has been replaced, carry out all the adjustments for the camera section.
- As the CCD imager may be damaged by static electricity from its structure, handle it carefully like for the MOS IC.
  In addition, ensure that the receiver is not covered with dusts nor exposed to strong light.

no mark : REC/PB mode
( ) : REC mode
〈 〉: PB mode


CD-123P BOARD
⑤ REC IC721 13 Pin
1.4Vp-p
16.5ms
⑥⑦ REC IC721 14,15 Pin
8Vp-p
70ns
⑧ REC IC721 16 Pin
8.5Vp-p
70ns
(C-1) Q723 BUFFER
(B-1) Q724 BUFFER
Q723 2SK1875-(TE85L)
Q724 2SC2223-T1F13F14
R733 100
R734 4.7k
R732 3.9k
C729 0.01 F
C727 10 16V :AL
(G-2) IC721
CCD IMAGER
IC721 ICX060AK
VDD DGND SUB VL PG LH1 H1 H2
CCD OUT VSS VGG AGND V1 V2 V3 V4
C721 4.7 20V :TA B
L721 100μH
R728 100k
R727 820
R725 39k
C726 1 16V :TA A
C728 47 4V :AL
JL740
JL724
(D-2) D722 MA110-TX
C725 0.47
R724 1M
R723 100k
① REC IC721 1 ピン
8.5Vp-p
1H
② REC IC721 2 Pin
8.5Vp-p
1H
④ REC IC721 4 Pin
8.5Vp-p
1H
③ REC IC721 3 Pin
8.5Vp-p
1H
W721
1 PG
2 VSUB
3 GND
4 CAM -8.5V
5 H1
6 V2
7 H2
8 V1
9 GND
10 V3
11 VSUB DC
12 V4
13 GND
14 15V
15 CCD OUT
16 GND
FP-18 FLEXIBLE
⑨ REC W721 15 Pin
1.2Vp-p
1H
⑨ REC W721 15 Pin
1.2Vp-p
70ns


VC-137P
V SUB CONT
② REC (IC 602 22Pin) CN601 1Pin
5.6Vp-p
CN601 16P
PG 1
V SUB 2
GND 3
CAM -8.5V 4
H1 5
V2 6
H2 7
V1 8
GND 9
V3 10
VSUB DC 11
V4 12
GND 13
15V 14
CCD OUT 15
GND 16
JL603
JL604
JL605
JL606
JL602
JL601
JL609
JL610
JL611
(H-5)
16

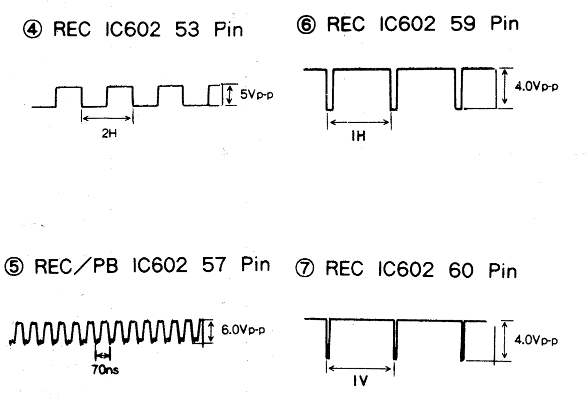
• SIGNAL PATH (ANALOG)

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡≫	➡⋙	
PB	⇨	⇨≫	⇨⋙	

• SIGNAL PATH (DIGITAL)

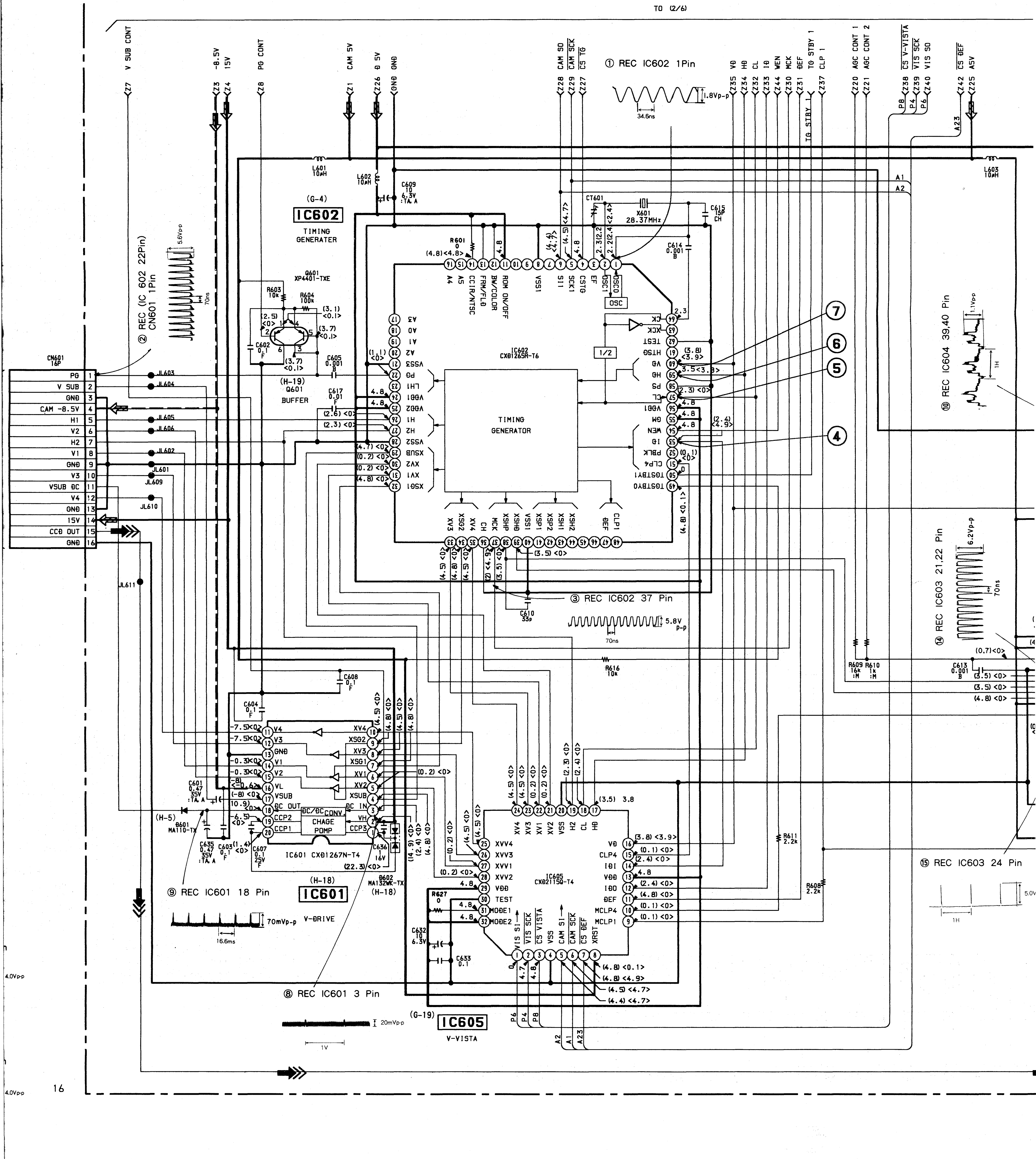
	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
WRITE	DIG ➡	DIG ➡≫	DIG ➡⋙	
READ	DIG ⇨	DIG ⇨≫	DIG ⇨⋙	

VC-137 BOARD


④ REC IC602 53 Pin
5Vp-p
2H
⑥ REC IC602 59 Pin
4.0Vp-p
1H
⑤ REC/PB IC602 57 Pin
6.0Vp-p
70ns
⑦ REC IC602 60 Pin
4.0Vp-p
1V

VC-137P BOARD (1/6)

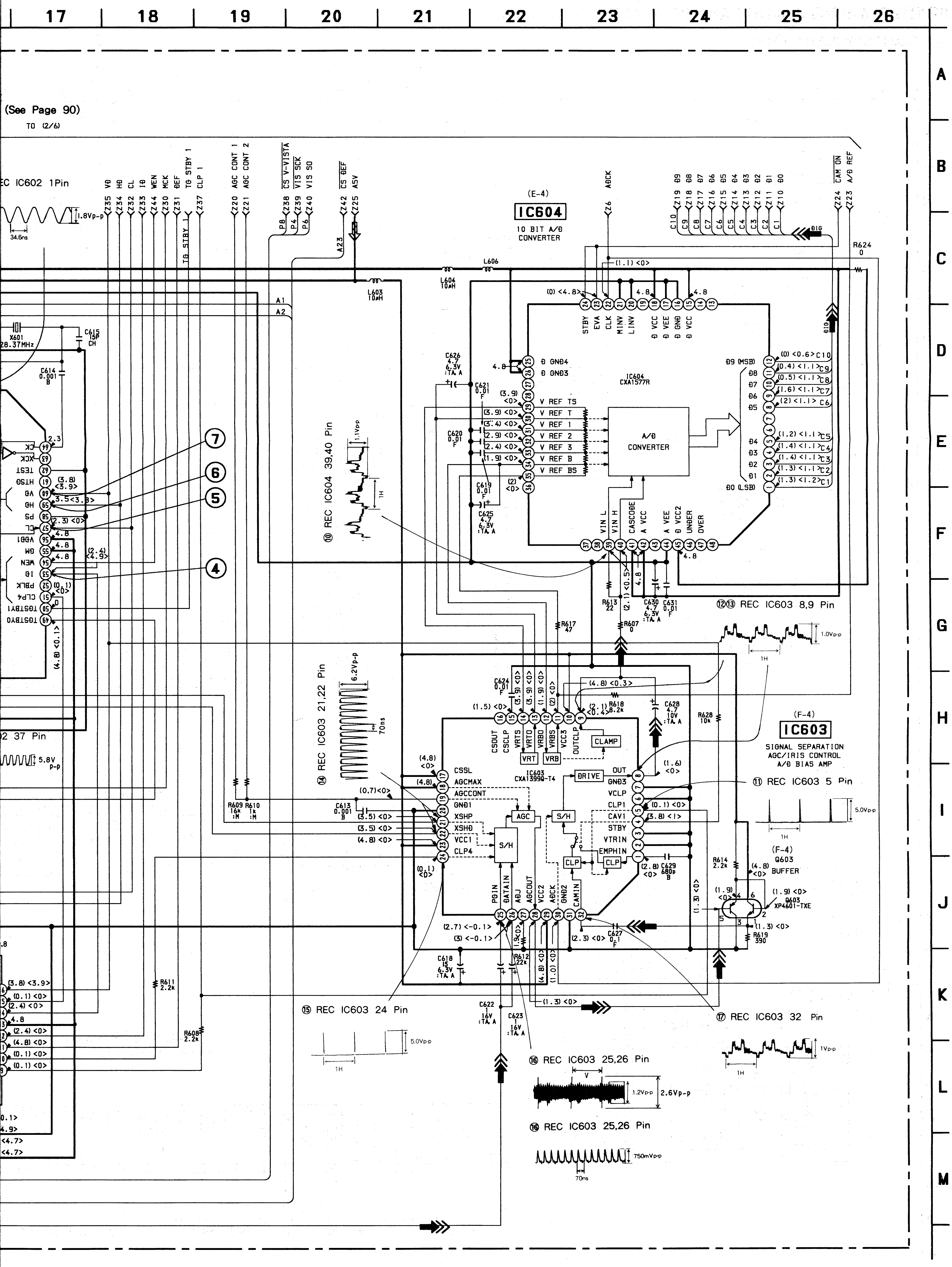
(See Page 90)
TO (2/6)


V SUB CONT
-8.5V
15V
PG CONT
CAM 5V
Ð 5V
GNÐ
CAM SO
CAM SCK
CS TG
① REC IC602 1Pin
1.8Vp-p
34.6ns
VÐ
HÐ
CL
IÐ
WEN
MCK
ÐEF
TG STBY 1
CLP 1
AGC CONT 1
AGC CONT 2
CS V-VISTA
VIS SCK
VIS SO
CS ÐEF
A5V
L601 10μH
L602 10μH
C609 10 6.3V :TA A
(G-4)
IC602
TIMING GENERATER
CT601
X601 28.37MHz
C615 15P CH
C614 0.001 B
L603 10μH
A1
A2
② REC (IC 602 22Pin) CN601 1Pin
5.6Vp-p
70ns
Q601 XP4401-TXE
R603 10k
R604 100k
C602 0.1 F
C605 0.001 B
(H-19) Q601 BUFFER
C617 0.01 F
R601 0
OSC
1/2
IC602 CX81265R-T6
TIMING GENERATOR
⑦
⑥
⑤
④
⑩ REC IC604 39,40 Pin
1.1Vp-p
1H
CN601 16P
PG 1
V SUB 2
GNÐ 3
CAM -8.5V 4
H1 5
V2 6
H2 7
V1 8
GNÐ 9
V3 10
VSUB ÐC 11
V4 12
GNÐ 13
15V 14
CCÐ OUT 15
GNÐ 16
JL603
JL604
JL605
JL606
JL602
JL601
JL609
JL610
JL611
③ REC IC602 37 Pin
5.8Vp-p
70ns
C610 33p
R616 10k
R609 16k
R610 1k
C613 0.001 B
⑭ REC IC603 21,22 Pin
6.2Vp-p
70ns
C608 0.1 F
C604 0.1 F
C601 0.47 35V :TA A
(H-5) D601 MA110-TX
C635 0.47 35V :TA A
C603 0.1 F
C607 0.1 25V F
ÐC/ÐC CONV
CHAGE POMP
IC601 CX81267N-T4
C636 1 16V
D602 MA132WK-TX (H-18)
(H-18)
IC601
⑨ REC IC601 18 Pin
70mVp-p
V-ÐRIVE
16.6ms
R627 0
C632 10 6.3V
C633 0.1
IC605 CX821150-T4
R611 2.2k
R608 2.2k
⑮ REC IC603 24 Pin
5.0V
1H
⑧ REC IC601 3 Pin
20mVp-p
1V
(G-19)
IC605
V-VISTA
P6
P4
P8
A2
A1
A23

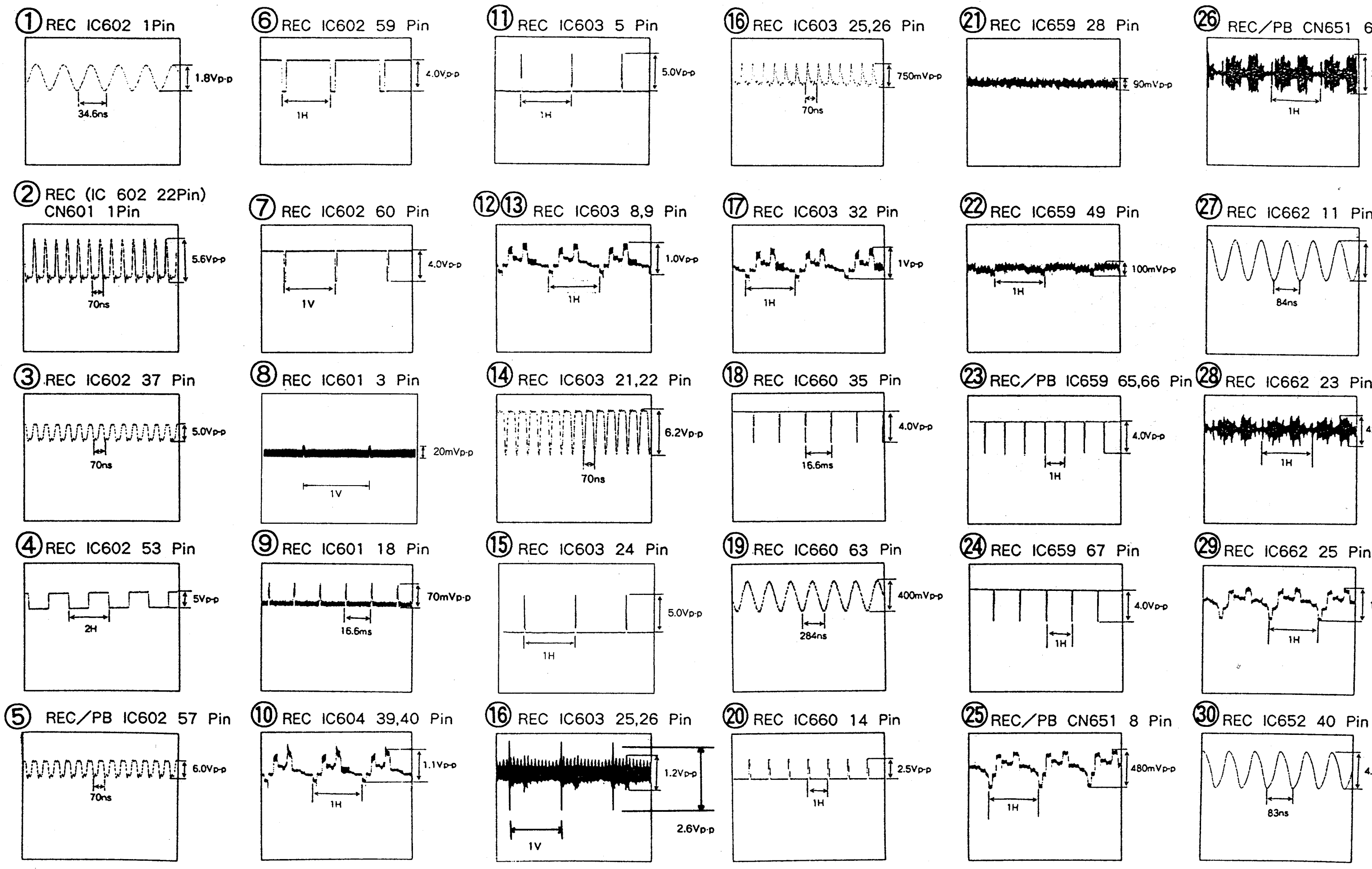
4.0Vp-p

4.0Vp-p

16

17
18
19
20
21
22
23
24
25
26
A
B
C
D
E
F
G
H
I
J
K
L
M
(See Page 90)
TO (2/6)
C IC602 1Pin
1.8Vp-p
34.6ns
VD
HD
CL
ID
WEN
MCK
DEF
TO STBY 1
CLP 1
AGC CONT 1
AGC CONT 2
CS V-VISTA
VIS SCK
VIS SO
CS DEF
A5V
ADCK
D9 D8 D7 D6 D5 D4 D3 D2 D1 D0
CAM ON
A/D REF
(E-4)
IC604
10 BIT A/D CONVERTER
L606
L604 10μH
L603 10μH
R624 0
TO STBY 1
A1
A2
X601 28.37MHz
C615 15P CH
C614 0.001 B
C626 4.7 6.3V :TA A
C621 0.01 F
C620 0.01 F
C619 0.01 F
C625 4.7 6.3V :TA A
STBY
EVA
CLK
MINV
LINV
D VCC
D VEE
D GND
D VCC
D GND4
D GND3
V REF TS
V REF T
V REF 1
V REF 2
V REF 3
V REF B
V REF BS
IC604 CXA1577R
A/D CONVERTER
D9 (MSB)
D0 (LSB)
VIN L
VIN H
CASCODE
A VCC
A VEE
D VCC2
UNDER
OVER
⑩ REC IC604 39,40 Pin
1.1Vp-p
1H
R613 22
C630 4.7 6.3V :TA A
C631 0.01 F
R607 0
R617 47
⑫⑬ REC IC603 8,9 Pin
1.0Vp-p
⑦
⑥
⑤
④
TEST
HTSG
VD
HD
PS
CL
VDD1
GM
WEN
ID
PBLK
CLP4
TGSTBY1
TGSTBY0
⑭ REC IC603 21,22 Pin
6.2Vp-p
70ns
2 37 Pin
5.8V p-p
C624 0.01 F
R618 8.2k
C628 4.7 10V :TA A
R628 10k
CSOUT
CSCLP
VRTS
VRTO
VRBO
VRBS
VCC3
OUTCLP
CLAMP
VRT
VRB
IC603 CXA1399Q-T4
DRIVE
OUT
GND3
VCLP
CLP1
CAV1
STBY
VTRIN
EMPHIN
CSSL
AGCMAX
AGCCONT
GND1
XSHP
XSHD
VCC1
CLP4
AGC
S/H
CLP
PGIN
DATAIN
ADJ
AGCOUT
VCC2
ADCK
GND2
CAMIN
R609 16k :M
R610 1k :M
C613 0.001 B
C629 680p B
(F-4)
IC603
SIGNAL SEPARATION AGC/IRIS CONTROL A/D BIAS AMP
⑪ REC IC603 5 Pin
5.0Vp-p
1H
(F-4) Q603 BUFFER
Q603 XP4601-TXE
R614 2.2k
R619 390
C627 0.1 F
C618 15 6.3V :TA A
R612 22k
R611 2.2k
R608 2.2k
C622 1 16V :TA A
C623 1 16V :TA A
⑮ REC IC603 24 Pin
5.0Vp-p
1H
⑯ REC IC603 25,26 Pin
V
1.2Vp-p
2.6Vp-p
⑯ REC IC603 25,26 Pin
750mVp-p
70ns
⑰ REC IC603 32 Pin
1Vp-p
1H

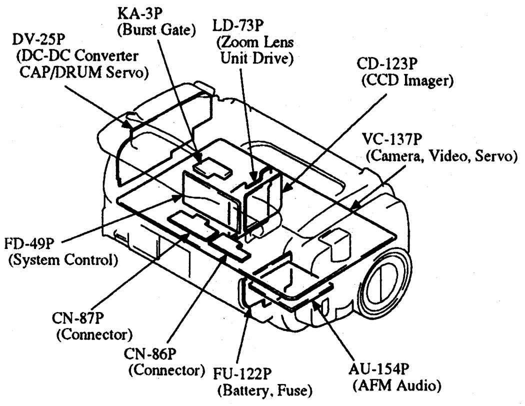
VC-137P BOARD



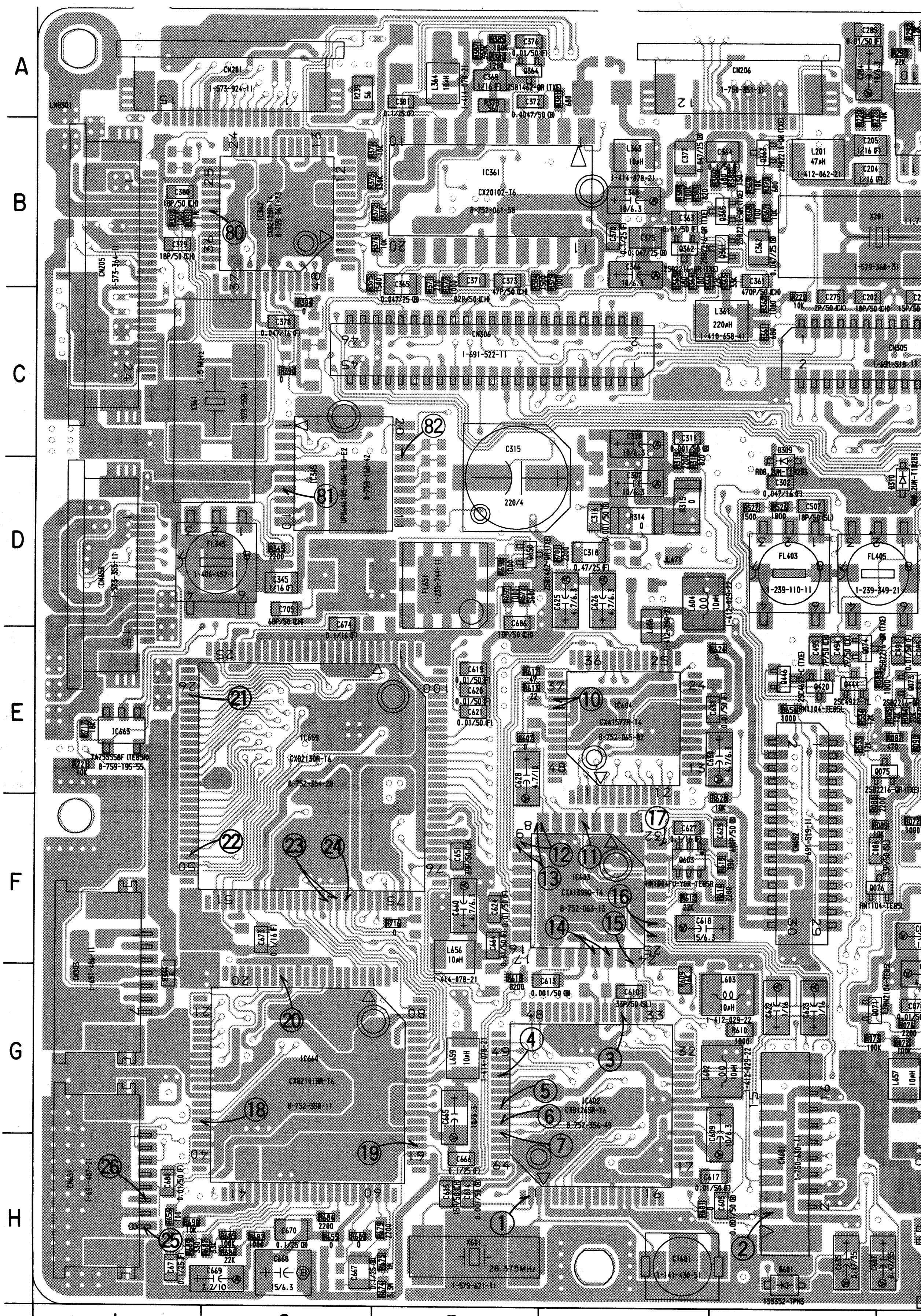
VC-137P (CAMERA, VIDEO, SERVO) PRINTED WIRING BOARD

– Ref. No. VC-137P BOARD : 2,000 Series –

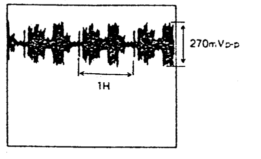
- For printed wiring boards
- VC-137P board is a six-layer print board. However, the patterns of layers 2 to 5 have not been included in the diagram.


KA-3P (Burst Gate)
DV-25P (DC-DC Converter CAP/DRUM Servo)
LD-73P (Zoom Lens Unit Drive)
CD-123P (CCD Imager)
VC-137P (Camera, Video, Servo)
FD-49P (System Control)
CN-87P (Connector)
CN-86P (Connector)
FU-122P (Battery, Fuse)
AU-154P (AFM Audio)

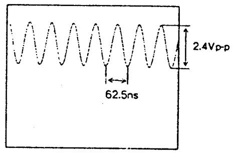
VC-137P BOARD – A SIDE –


A
B
C
D
E
F
G
H
16
1
2
3
4
5
IC361
CX20102-T6
IC659
CX82130R-T6
IC660
CX82101BR-T6
IC604
CXA1577R-T6
IC603
CXA1299Q-T6
IC602
CXD1265R-T6
IC665
X601
26.375MHz
C315
220/4
FL345
FL651
FL403
FL405
CN201
CN206
CN505
CN506
CN651
CT601

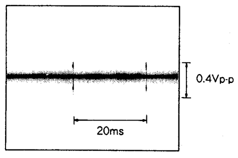
㉖ REC/PB CN651 6 Pin



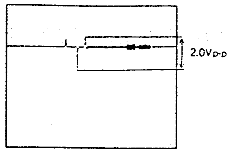
㉛ REC IC653 73 Pin



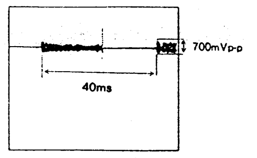
㊱ REC IC001 2 Pin



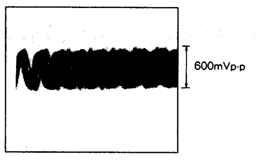
㊴ PB IC001 10 Pin



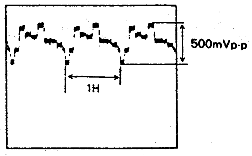
㊹ PB CN002 11 Pin



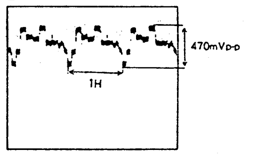
㊾ PB IC101 16 Pin



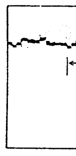
(54) REC/PB IC401 3 Pin



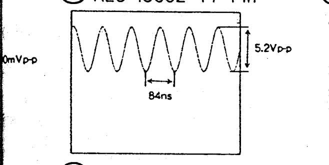
(58) REC/PB IC401 28 Pin



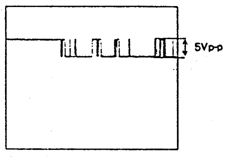
(63) REC/PB



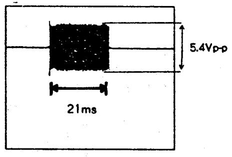
㉗ REC IC662 11 Pin



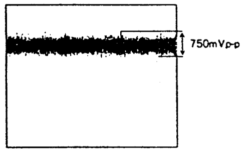
㉜ REC IC653 80 Pin



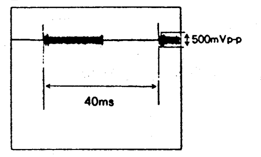
㊲ REC IC001 44 Pin



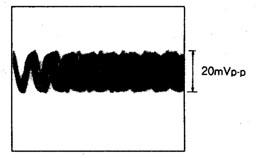
㊵ PB IC001 18 Pin



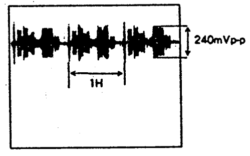
㊺ PB CN002 12 Pin



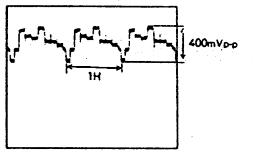
㊿ PB IC101 30 Pin



(55) PB IC401 5 Pin



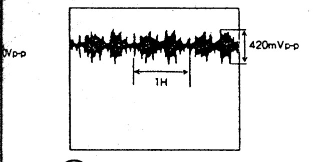
(59) REC/PB IC401 30 Pin



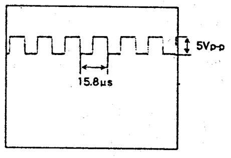
(64) REC/

66 Pin

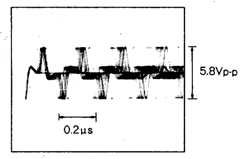
㉘ REC IC662 23 Pin



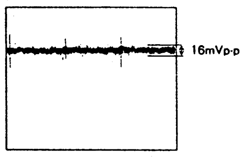
㉝ REC IC653 23 Pin



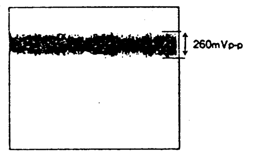
㊲ REC IC001 44 Pin



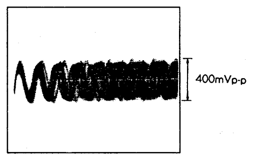
㊶ PB IC001 80 Pin



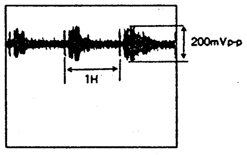
㊻ PB CN002 14 Pin



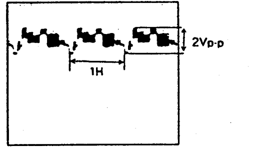
(51) PB IC101 39,41 Pin



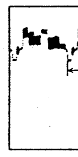
(55) REC IC401 5 Pin



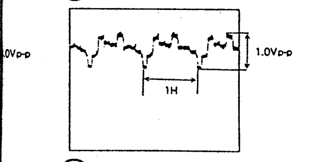
(60) REC/PB IC401 32 Pin



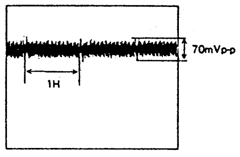
(65) PB I



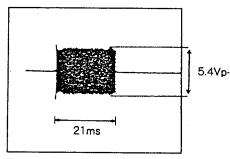
㉙ REC IC662 25 Pin



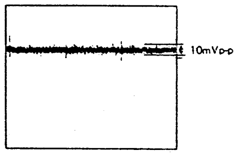
㉞ REC IC654 5 Pin



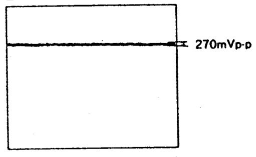
㊳ REC IC001 53 Pin



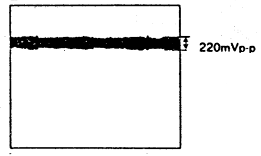
㊷ PB IC001 82 Pin



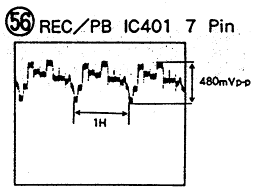
㊼ PB Q109 E Pin



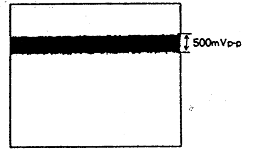
(52) PB Q122 E Pin



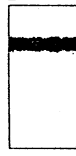
(56) REC/PB IC401 7 Pin



(61) REC IC401 43 Pin

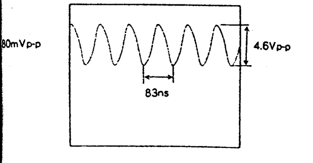


(66) PB I

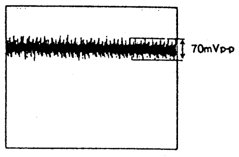


Pin

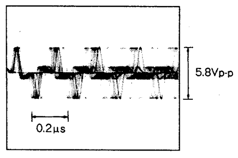
㉚ REC IC652 40 Pin



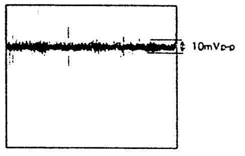
㉟ REC IC654 6 Pin



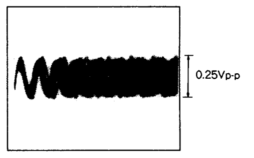
㊳ REC IC001 53 Pin



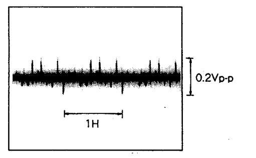
㊸ PB IC001 84 Pin



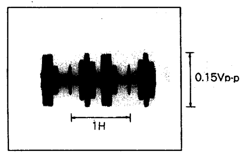
㊽ PB IC101 2,11 Pin



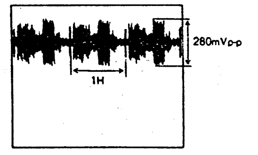
(53) REC/PB IC401 1 Pin



(57) REC/PB IC401 13 Pin

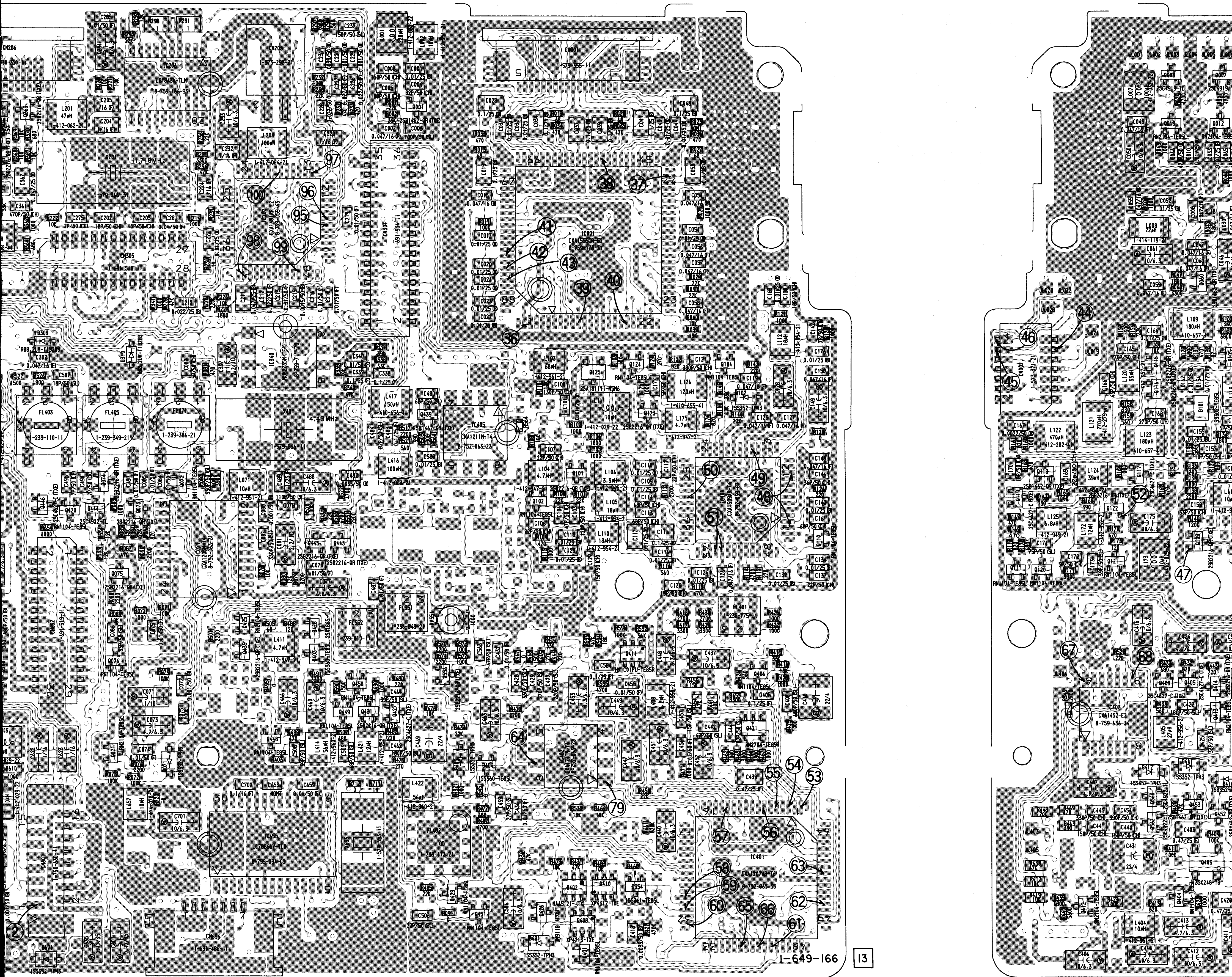


(62) REC/PB IC401 52 Pin



(67) PB I

VC-137P BOARD – B SID


IC206
LB1845V-TLM
X281
11.718MHz
CN205
IC302
CN505
CN001
IC001
CXA1555CR-E2
IC340
X401
4.43MHz
FL403
FL405
FL071
IC405
CXA1211M-T4
IC101
CXA1505AR-T4
FL551
FL552
FL401
IC655
LC78866Y-TLM
FL402
IC401
CXA1287AR-T6
CN654
IC403
CXA1452-E2
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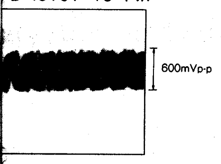
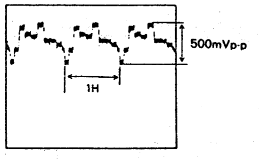
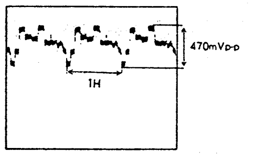
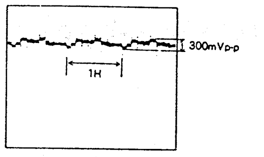
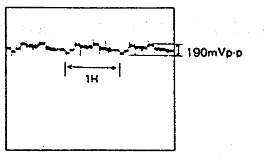
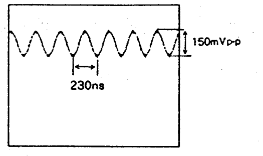

PB IC101 16 Pin

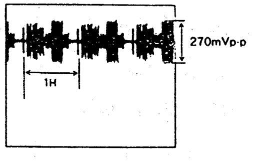

(54) REC/PB IC401 3 Pin

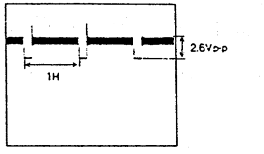

(58) REC/PB IC401 28 Pin

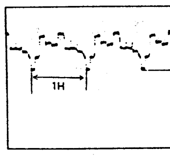

(63) REC/PB IC401 57 Pin

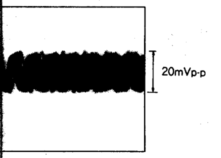

(68) REC IC403 10 Pin

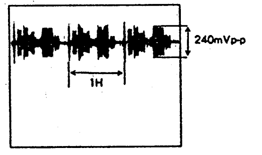

(72) REC IC404 8 Pin

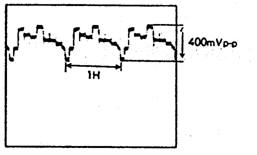

(76) REC IC404 44 Pin

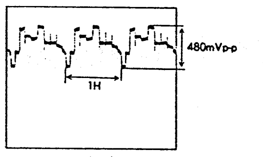

(81) REC/PB IC345 7 Pin

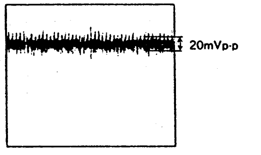

(85) REC/PB IC302

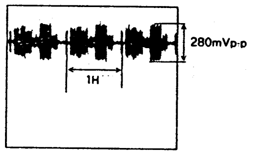

PB IC101 30 Pin

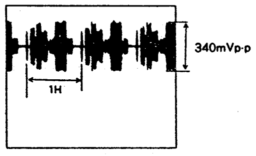

(55) PB IC401 5 Pin

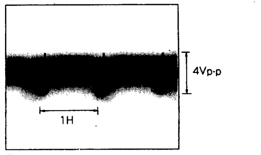

(59) REC/PB IC401 30 Pin

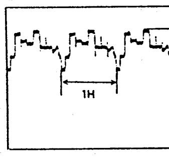

(64) REC/PB IC402 7 Pin

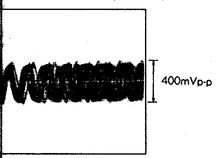

(69) REC IC552 1,4 Pin

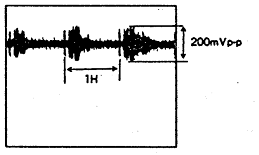

(73) REC/PB IC404 32 Pin

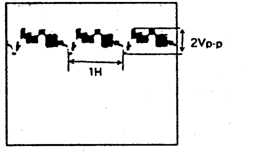

(77) PB IC404 38 Pin

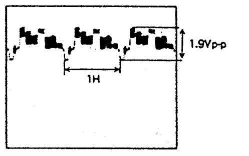

(81) REC/PB IC345 7 Pin

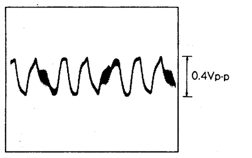

(86) REC IC302 23

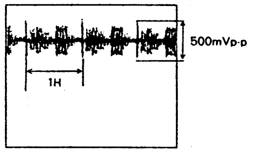

PB IC101 39,41 Pin

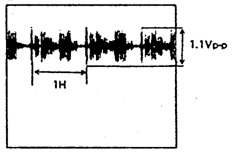

(55) REC IC401 5 Pin

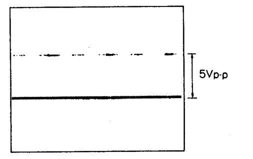

(60) REC/PB IC401 32 Pin

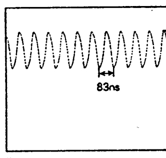

(65) PB IC401 38 Pin

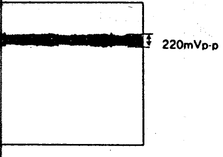

(70) REC/PB IC404 2 Pin

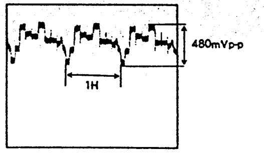

(74) REC IC404 40 Pin

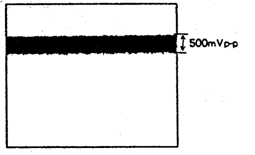

(78) PB IC404 36 Pin

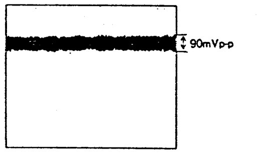

(82) REC/PB IC345 17 Pin

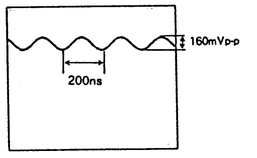

(87) REC/PB IC201

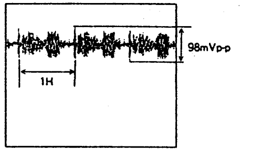

PB Q122 E Pin

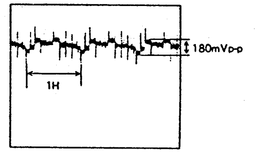

(56) REC/PB IC401 7 Pin

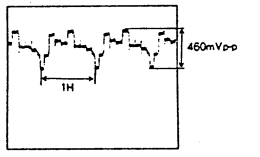

(61) REC IC401 43 Pin

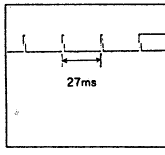

(66) PB IC401 41 Pin

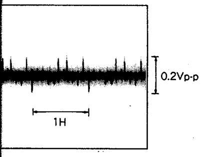

(71) REC/PB IC404 4 Pin


(75) PB IC404 42 Pin


(79) PB IC402 1 Pin


(83) REC IC302 3 Pin


(88) REC/PB IC203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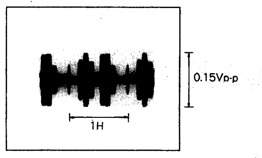
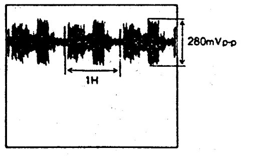
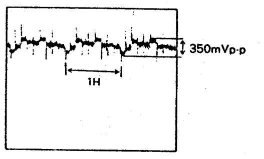
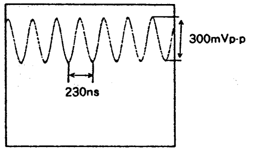
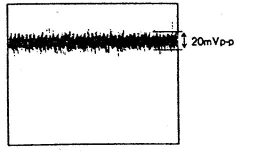
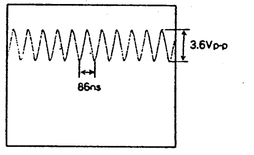

(57) REC/PB IC401 13 Pin

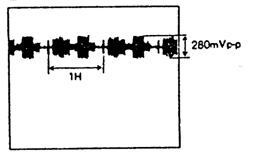

(62) REC/PB IC401 52 Pin

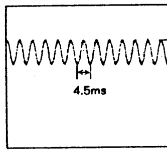

(67) PB IC403 16 Pin


(72) PB IC404 8 Pin

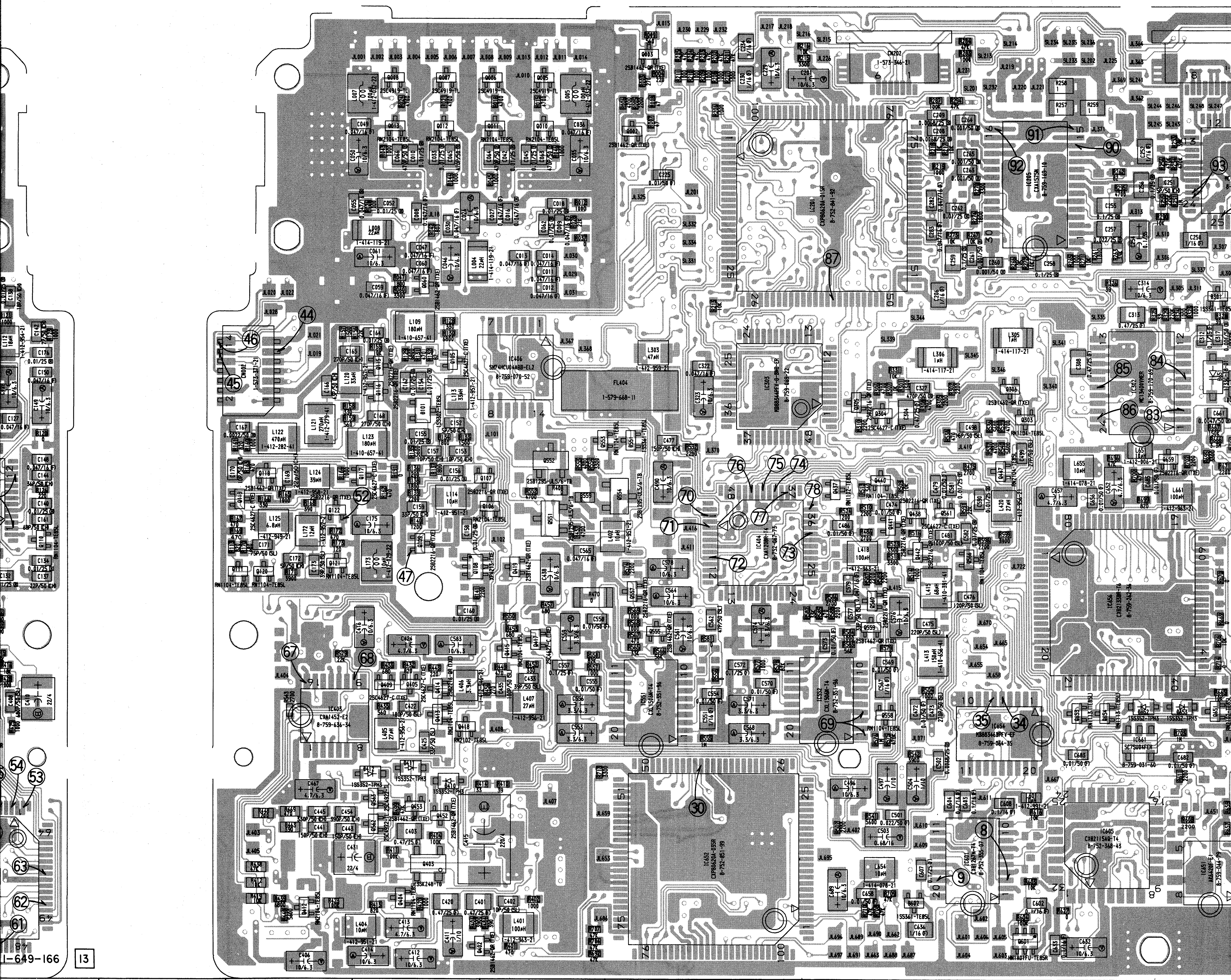

(75) REC IC404 42 Pin


(80) REC/PB IC362 30 Pin


(84) REC IC302 7 Pin


(89) REC/PB IC203

VC-137P BOARD – B SIDE –


IC406
IC402
FL404
IC401
IC404
IC201
IC205
IC302
IC403
IC551
IC552
IC652
IC454
IC601
IC605
IC661
IC456
CN202
1-649-166
13
11
12
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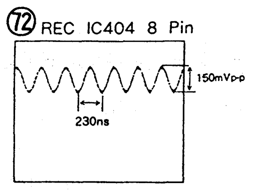
16
17
18
19
20

Pin

190mVp-p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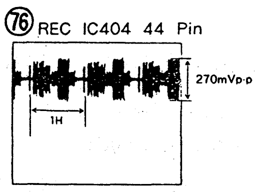
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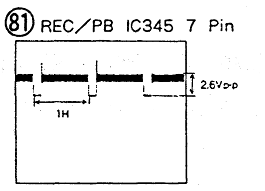
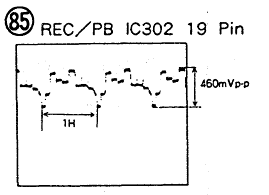
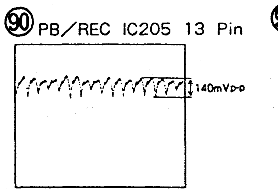
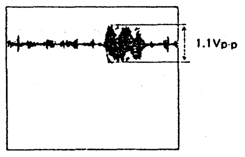
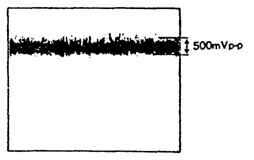

(81) REC/PB IC345 7 Pin


(85) REC/PB IC302 19 Pin

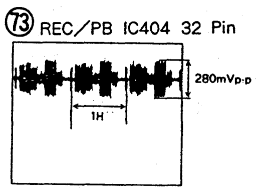

(90) PB/REC IC205 13 Pin

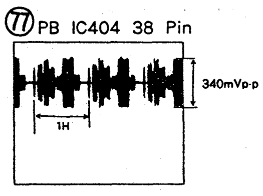

(95) PB IC202 6 Pin

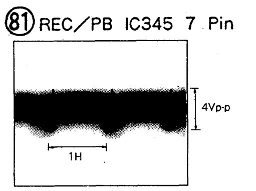

(99) PB IC202 46 Pin

Pin

20mVp-p


(73) REC/PB IC404 32 Pin


(77) PB IC404 38 Pin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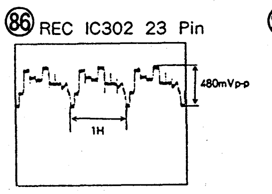
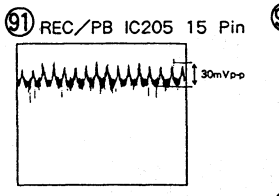
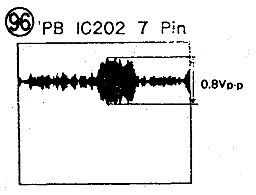

(86) REC IC302 23 Pin


(91) REC/PB IC205 15 Pin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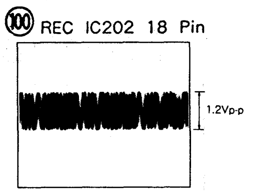
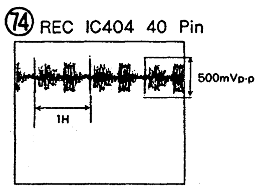
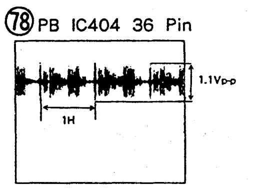
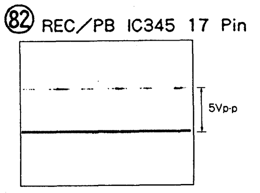

(100) REC IC202 18 Pin

2 Pin

0.4Vp-p


(74) REC IC404 40 Pin


(78) PB IC404 36 Pin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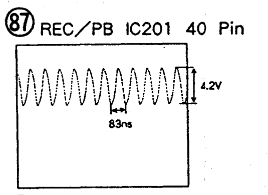
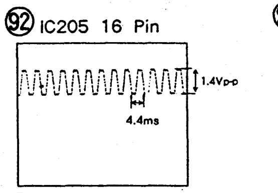
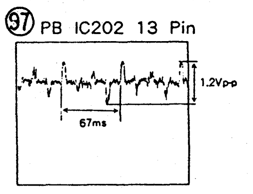

(87) REC/PB IC201 40 Pin


(92) IC205 16 Pin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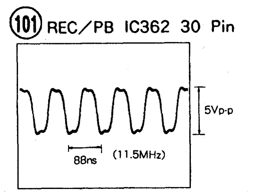
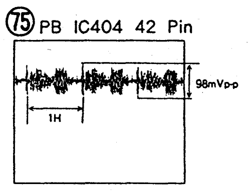

(101) REC/PB IC362 30 Pin

4 Pin

160mVp-p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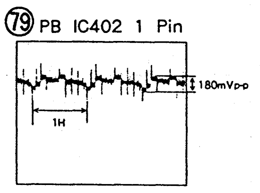
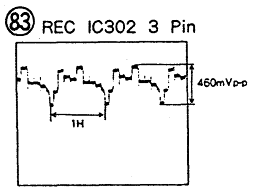
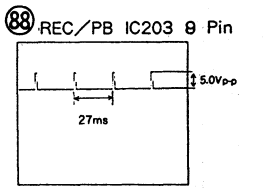
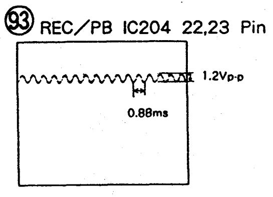
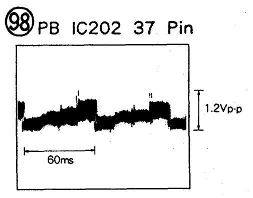

(79) PB IC402 1 Pin

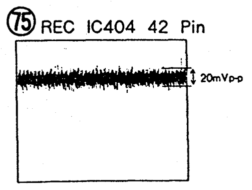

(83) REC IC302 3 Pin

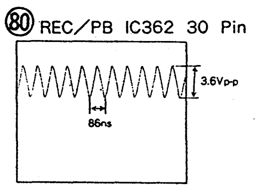

(88) REC/PB IC203 9 Pin

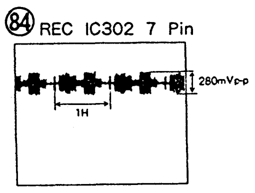

(93) REC/PB IC204 22,23 Pin

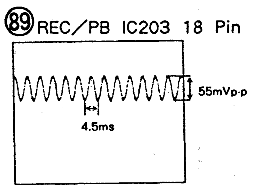

(98) PB IC202 37 Pin

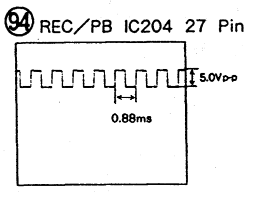
300mVp-p

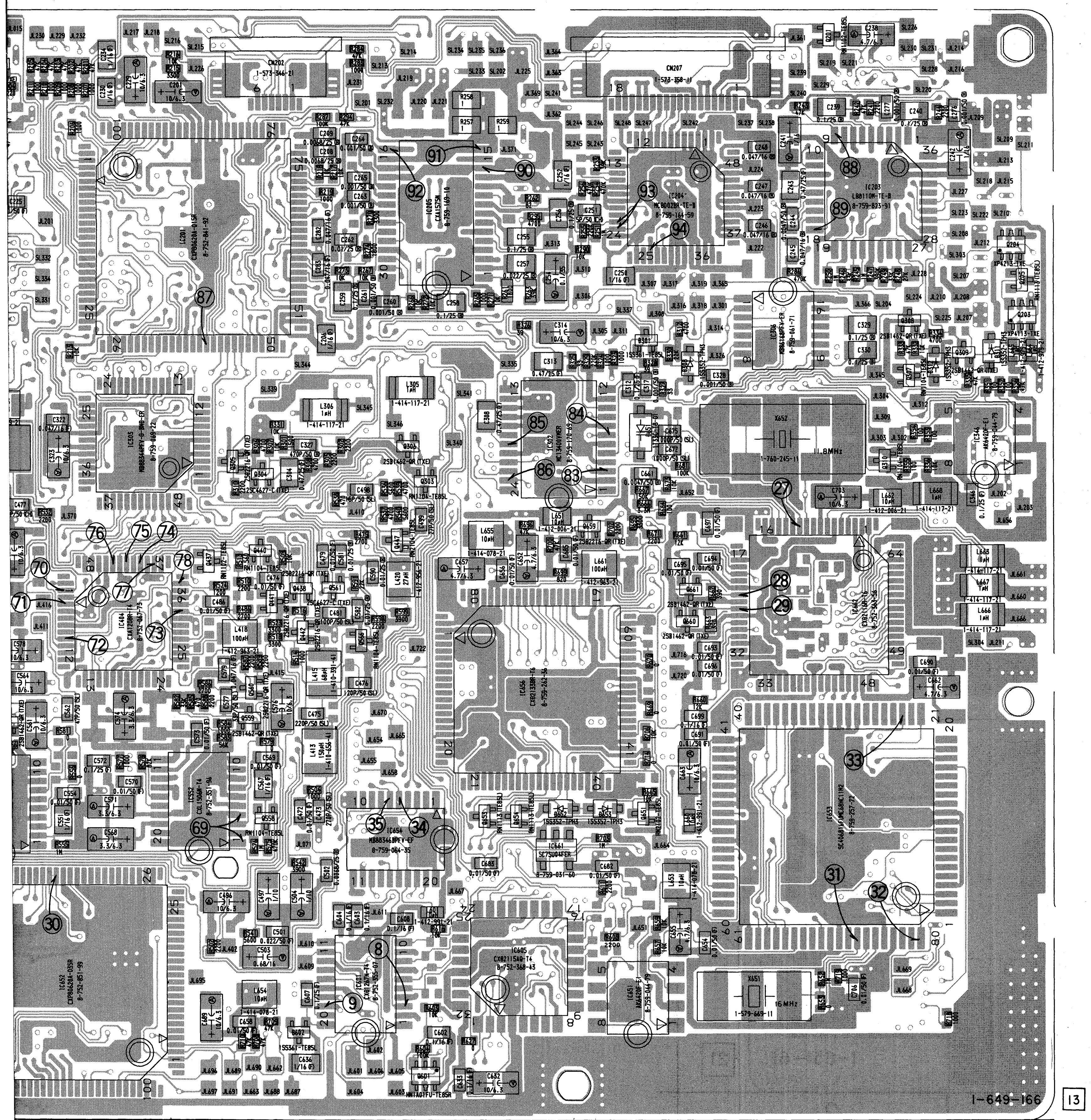

(75) REC IC404 42 Pin


(80) REC/PB IC362 30 Pin


(84) REC IC302 7 Pin


(89) REC/PB IC203 18 Pin

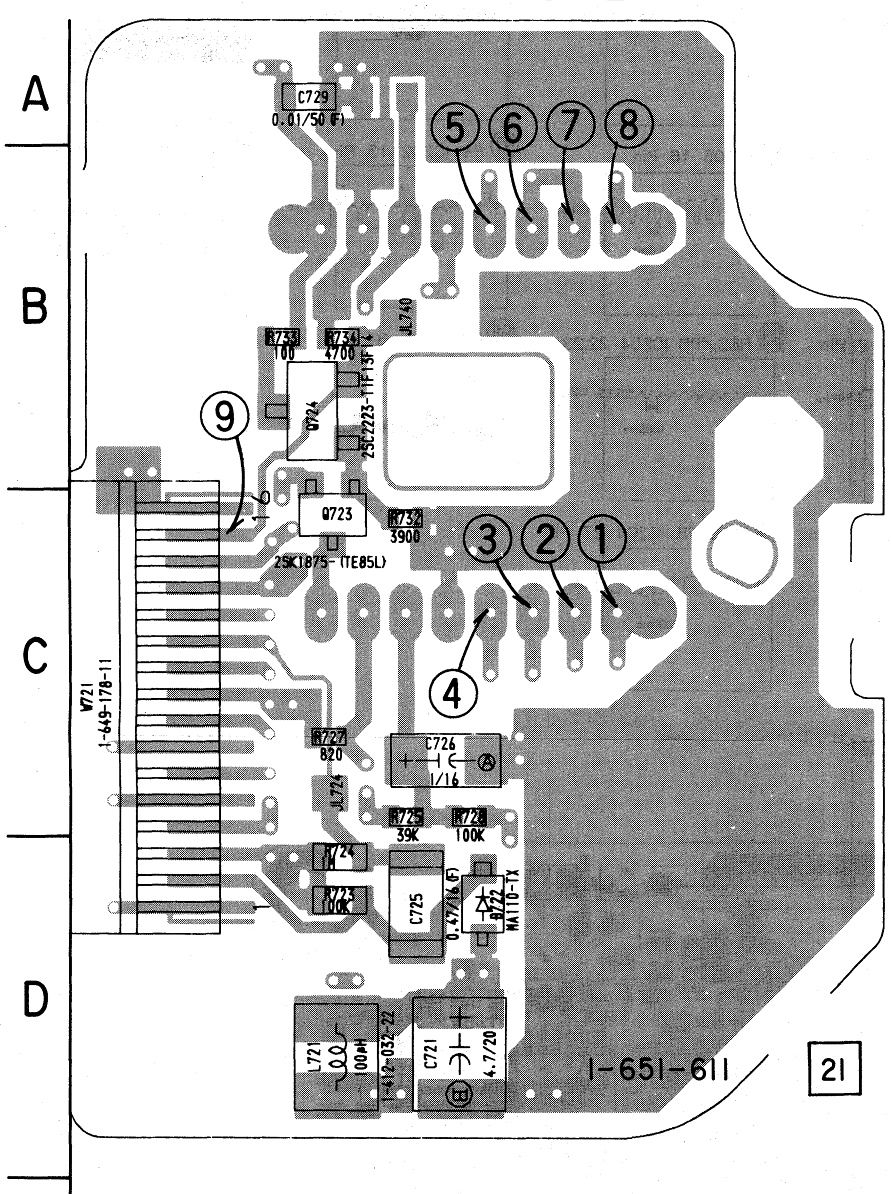

(94) REC/PB IC204 27 Pin


CN202
CN207
IC201
IC205
IC204
IC203
IC202
IC305
IC302
IC404
IC654
IC653
IC652
IC651
IC661
IC605
X652
11.8MHz
X651
16MHz
(8)
(9)
(27)
(28)
(29)
(30)
(31)
(32)
(33)
(34)
(35)
(69)
(70)
(71)
(72)
(73)
(74)
(75)
(76)
(77)
(78)
(83)
(84)
(85)
(86)
(87)
(88)
(89)
(91)
(92)
(93)
(94)
1-649-166
13
6
17
18
19
20
21
22
23

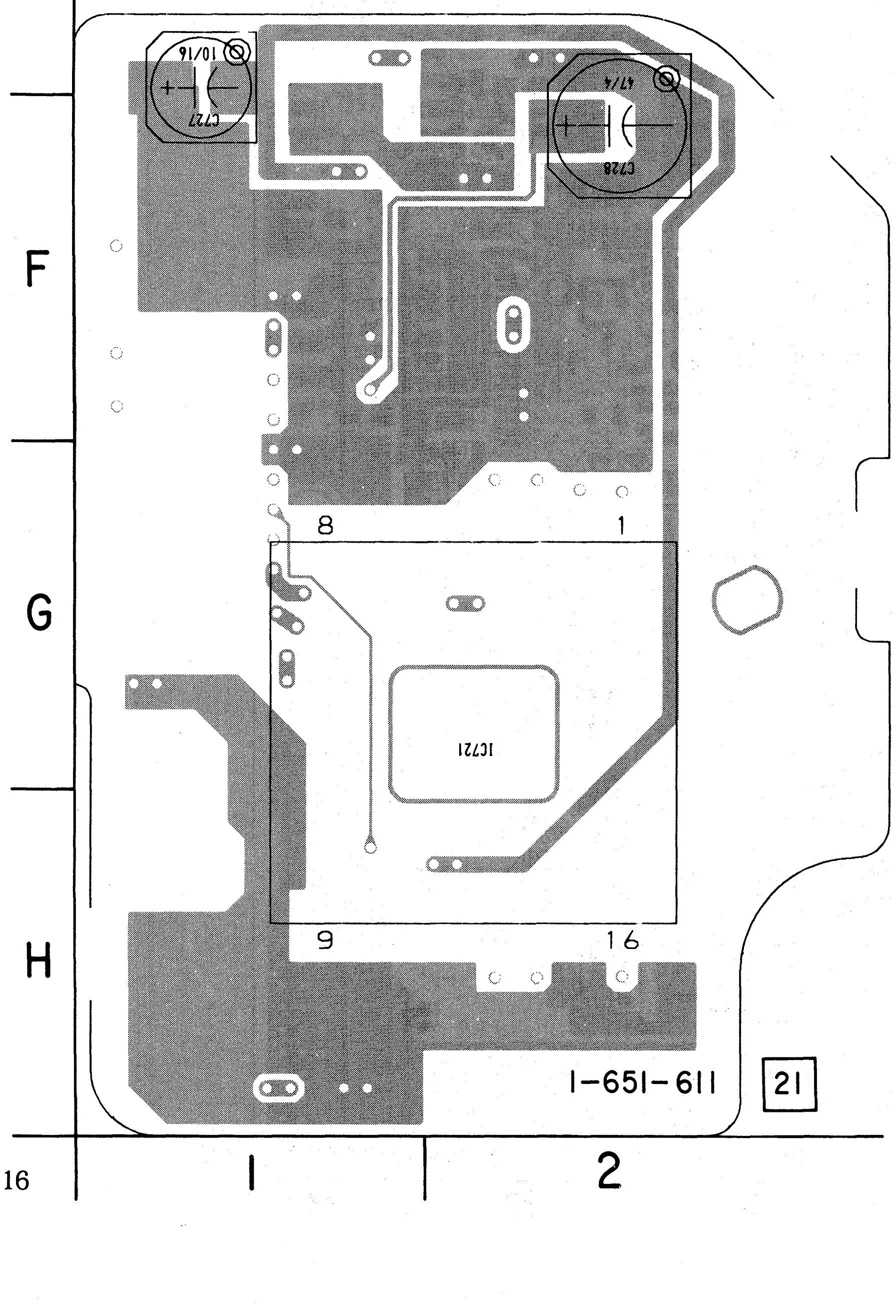
CD-123P (CCD IMAGER), FP-423 FLEXIBLE (TAPE TOP/END SENSOR, SWITCH), SE-34P (EJECT SWITCH), KA-3P(BURST GATE)

– Ref. No. CD-123P BOARD : 1,000 Series, FP-423 FLEXIBLE BOARD : 16,000 Series, SE-34P BOARD : 3,000 Series, KA-3P BOARD : 17,000 Series –

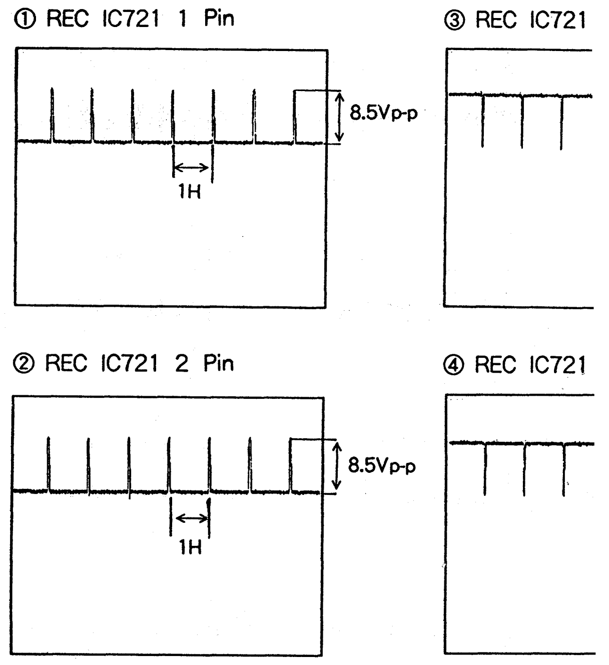
CD-123P BOARD – A SIDE –


A
B
C
D
C729
0.01/50 (F)
⑤⑥⑦⑧
R733 100
R734 4700
JL740
Q724
2SC2223-T1F13F14
⑨
Q723
R732 3900
2SK1875-(TE85L)
③②①
④
W721 1-649-178-11
R727 820
C726 1/16
Ⓐ
JL724
R725 39K
R726 100K
R724 1M
R723 100K
C725
0.47/16 (F)
D722 MA110-TX
L721 100μH
1-412-032-22
C721 4.7/20
Ⓑ
1-651-611
21

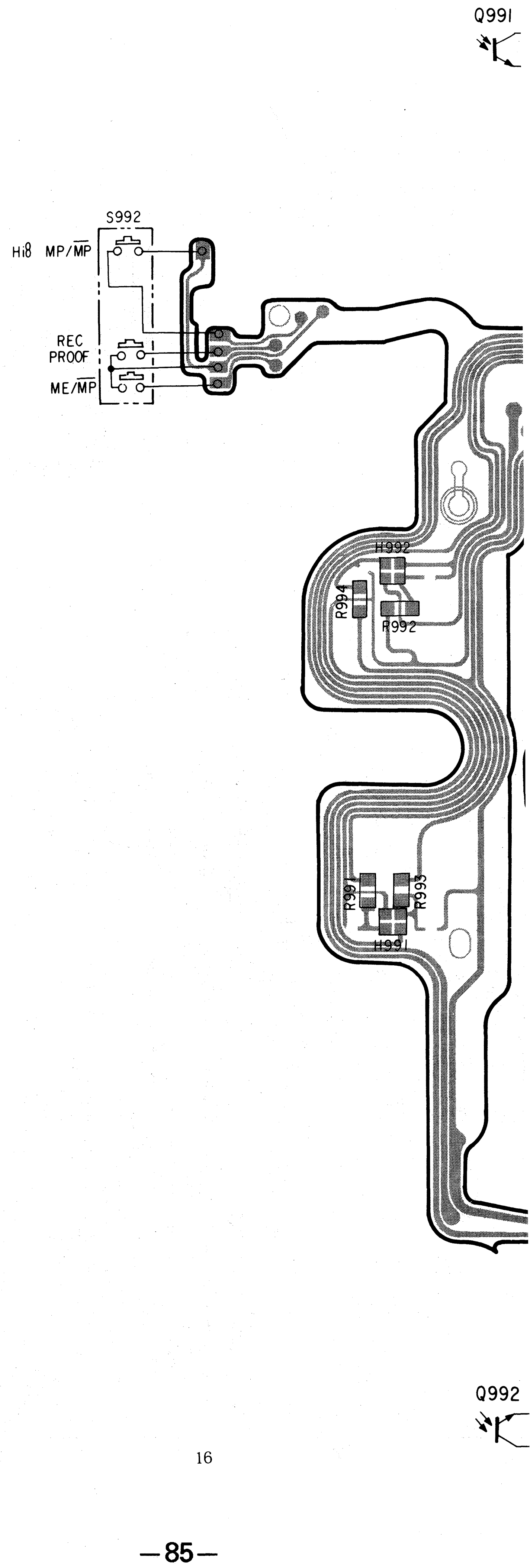
CD-123P BOARD – B SIDE –


E
F
G
H
C727 10/16
C728 47/4
8
1
IC721
9
16
1-651-611
21
16
1
2

CD-123P BOARD



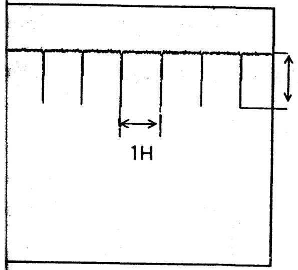
FP-423


Q991
S992
Hi8 MP/MP
REC PROOF
ME/MP
H992
R994
R992
R991
R993
H991
Q992
16

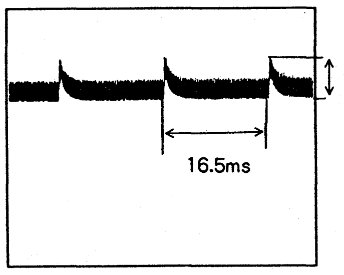
T GATE) PRINTED WIRING BOARD • See page 105 for Schematic Diagram on the FP-423 flexible. • See page 75 for Schematic Diagram on CD-123P board.

s –

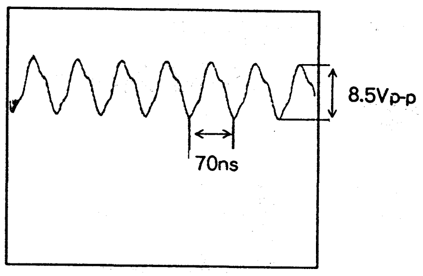
EC IC721 3 Pin



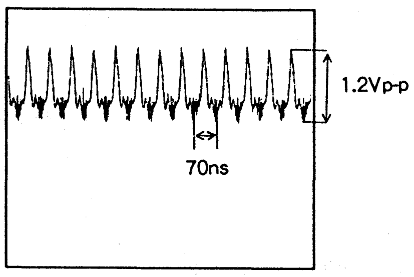
⑤ REC IC721 13 Pin

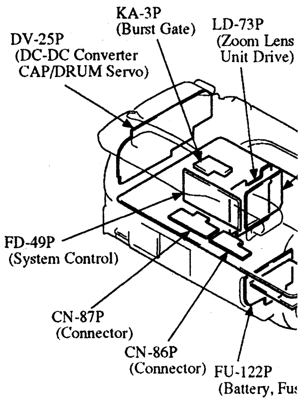


⑧ REC IC721 16 Pin

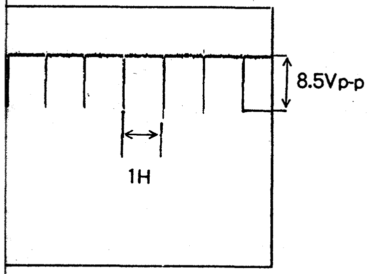


⑨ REC W721 15 Pin

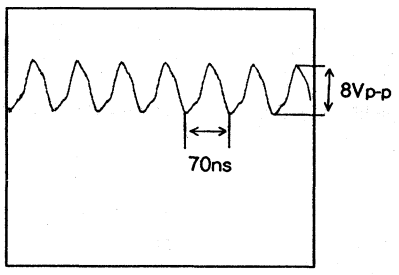



KA-3P (Burst Gate)
LD-73P (Zoom Lens Unit Drive)
DV-25P (DC-DC Converter CAP/DRUM Servo)
FD-49P (System Control)
CN-87P (Connector)
CN-86P (Connector)
FU-122P (Battery, Fu

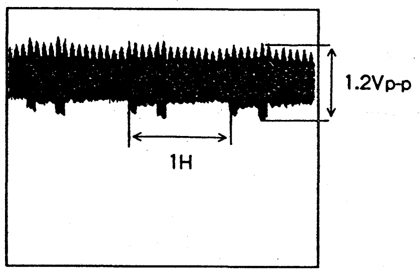
EC IC721 4 Pin



⑥⑦ REC IC721 14,15 Pin

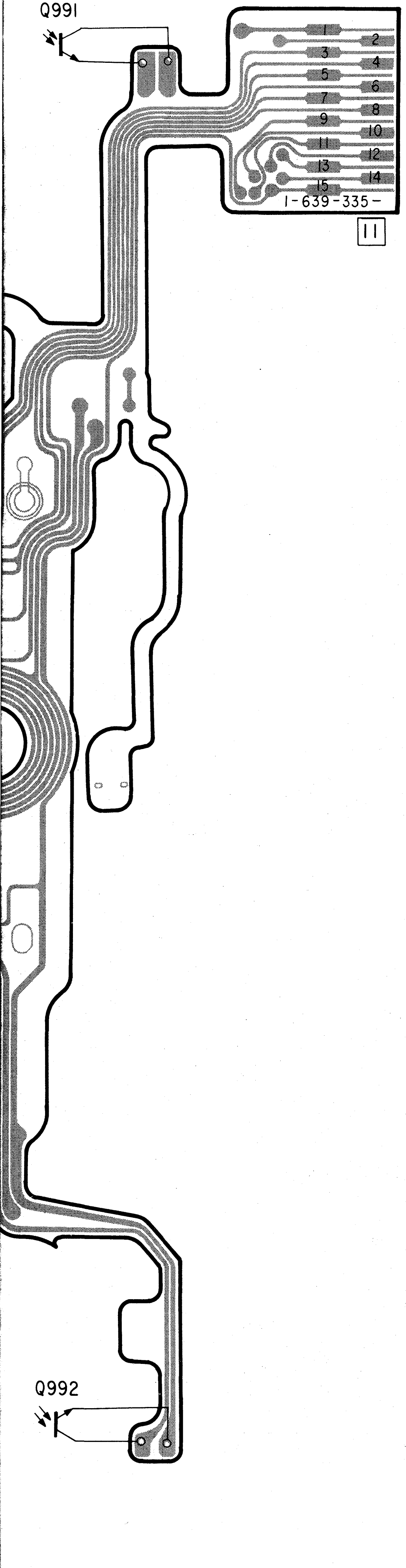


⑨ REC W721 15 Pin



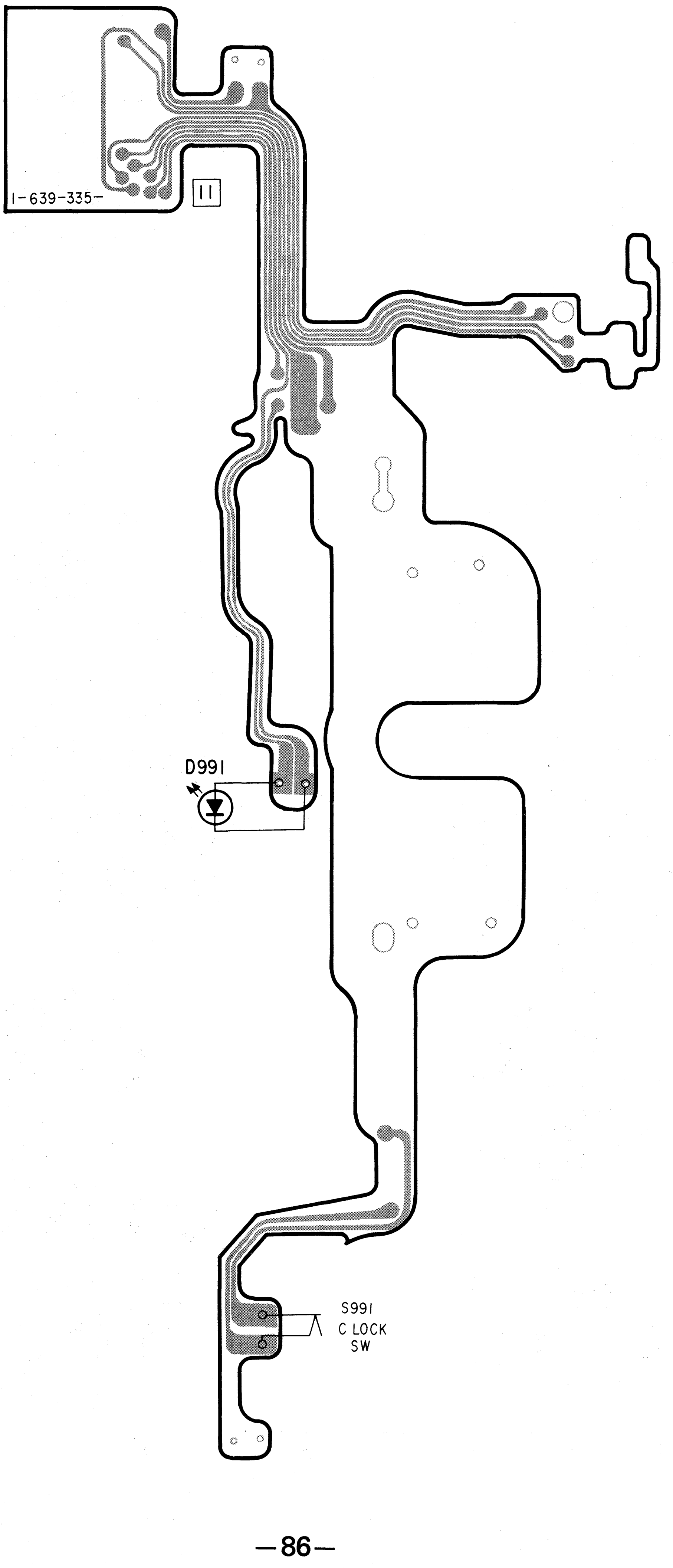
-423 FLEXIBLE BLOCK

– B SIDE –

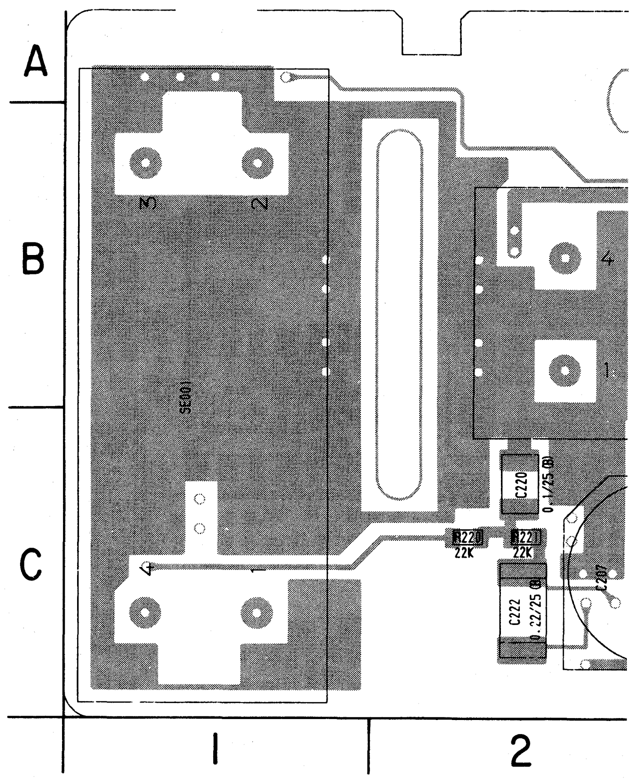

Q991
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1-639-335-
11
Q992

FP-423 FLEXIBLE BLOCK

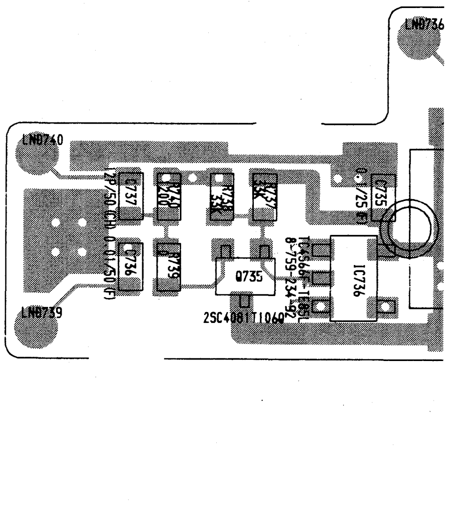
– A SIDE –


1-639-335-
11
D991
S991
C LOCK
SW

SE-34P BOARD – A SIDE –

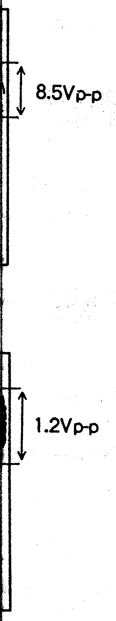

A
B
C
1
2
SE001
C220
0.1/25
R220 22K
R221 22K
C222
0.22/25
4
1

KA-3P BOARD

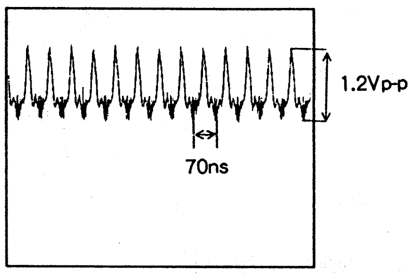

LND740
LND739
LND736
IC736
Q735
2SC4081T106Q

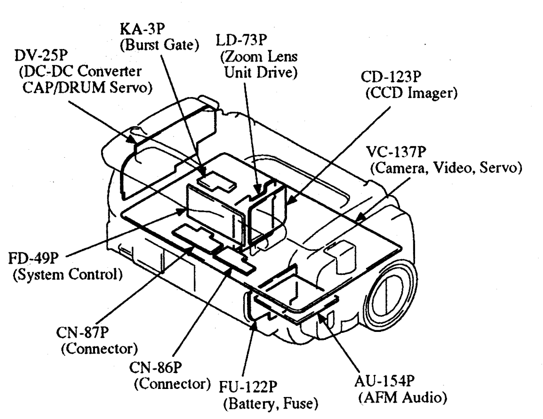
16

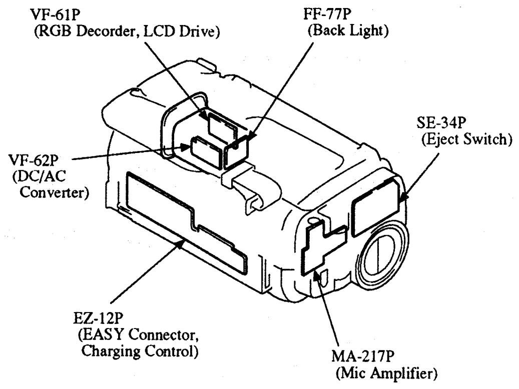
xible. • **See page 75 for Schematic Diagram on CD-123P board.**

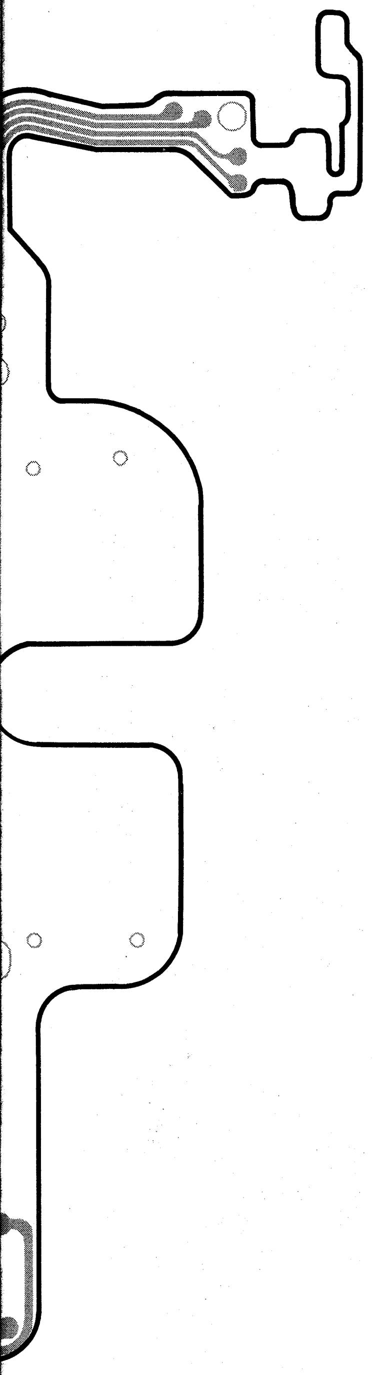


⑨ REC W721 15 Pin

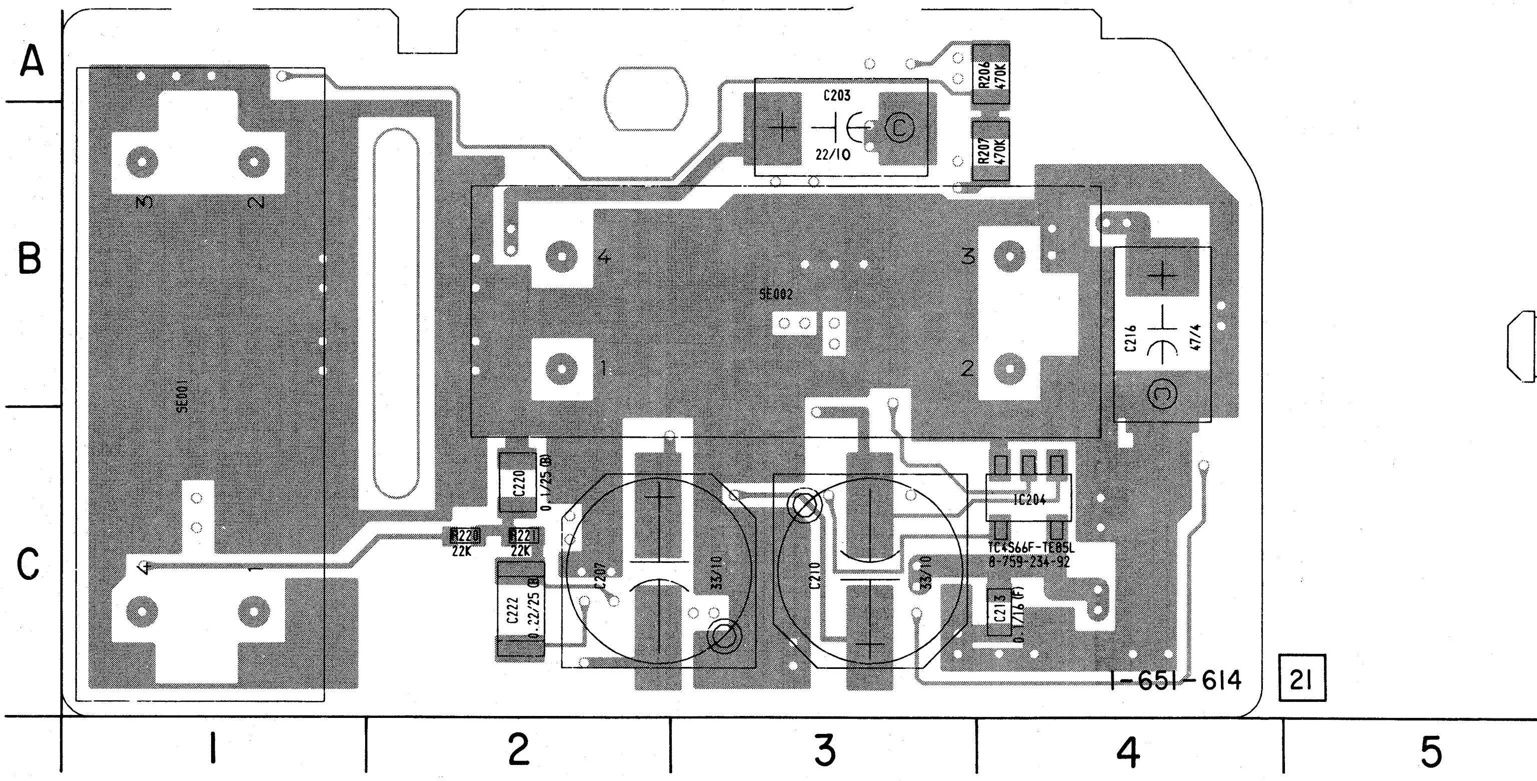



KA-3P
(Burst Gate)
DV-25P
(DC-DC Converter
CAP/DRUM Servo)
LD-73P
(Zoom Lens
Unit Drive)
CD-123P
(CCD Imager)
VC-137P
(Camera, Video, Servo)
FD-49P
(System Control)
CN-87P
(Connector)
CN-86P
(Connector)
FU-122P
(Battery, Fuse)
AU-154P
(AFM Audio)

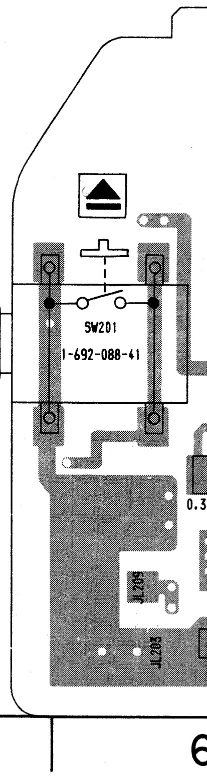

VF-61P
(RGB Decorder, LCD Drive)
FF-77P
(Back Light)
SE-34P
(Eject Switch)
VF-62P
(DC/AC
Converter)
EZ-12P
(EASY Connector,
Charging Control)
MA-217P
(Mic Amplifier)



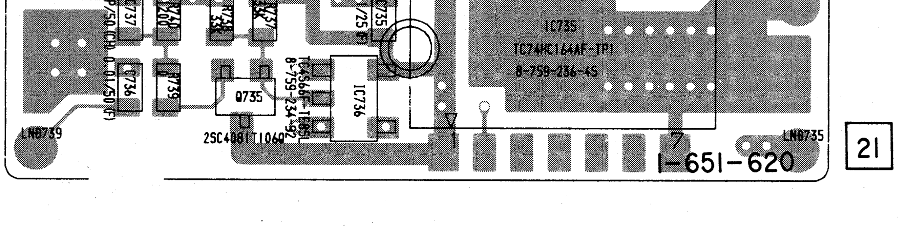
SE-34P BOARD – A SIDE –


A
B
C
1
2
3
4
5
SE001
SE002
C203
22/10
R206
470K
R207
470K
C216
47/4
C220
0.1/25
R220
22K
R221
22K
C222
0.22/25
C207
33/10
C210
33/10
IC204
TC4S66F-TE85L
8-759-234-92
C213
0.1/16
1-651-614
21

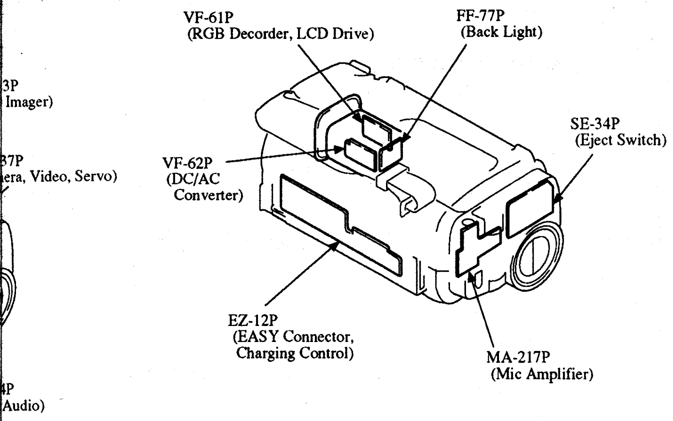
SE-3

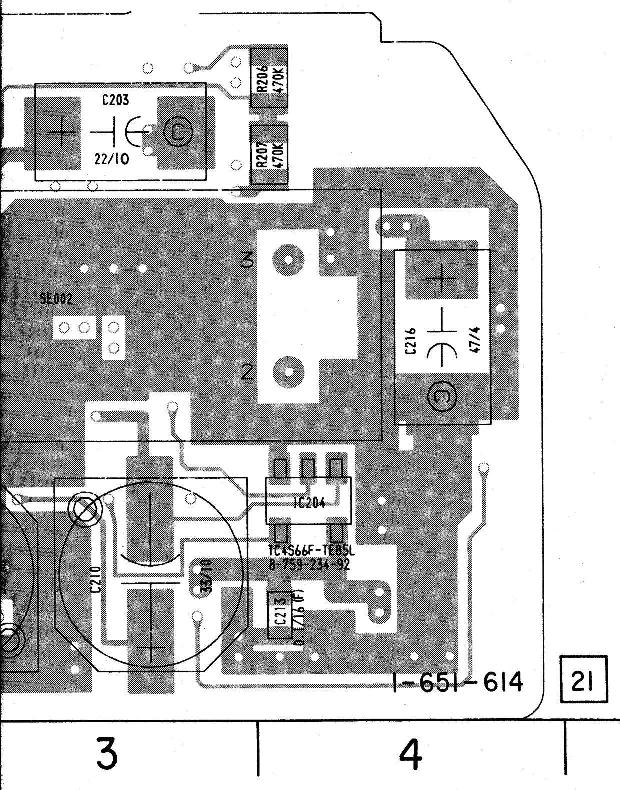

SW201
1-692-088-41
6

KA-3P BOARD

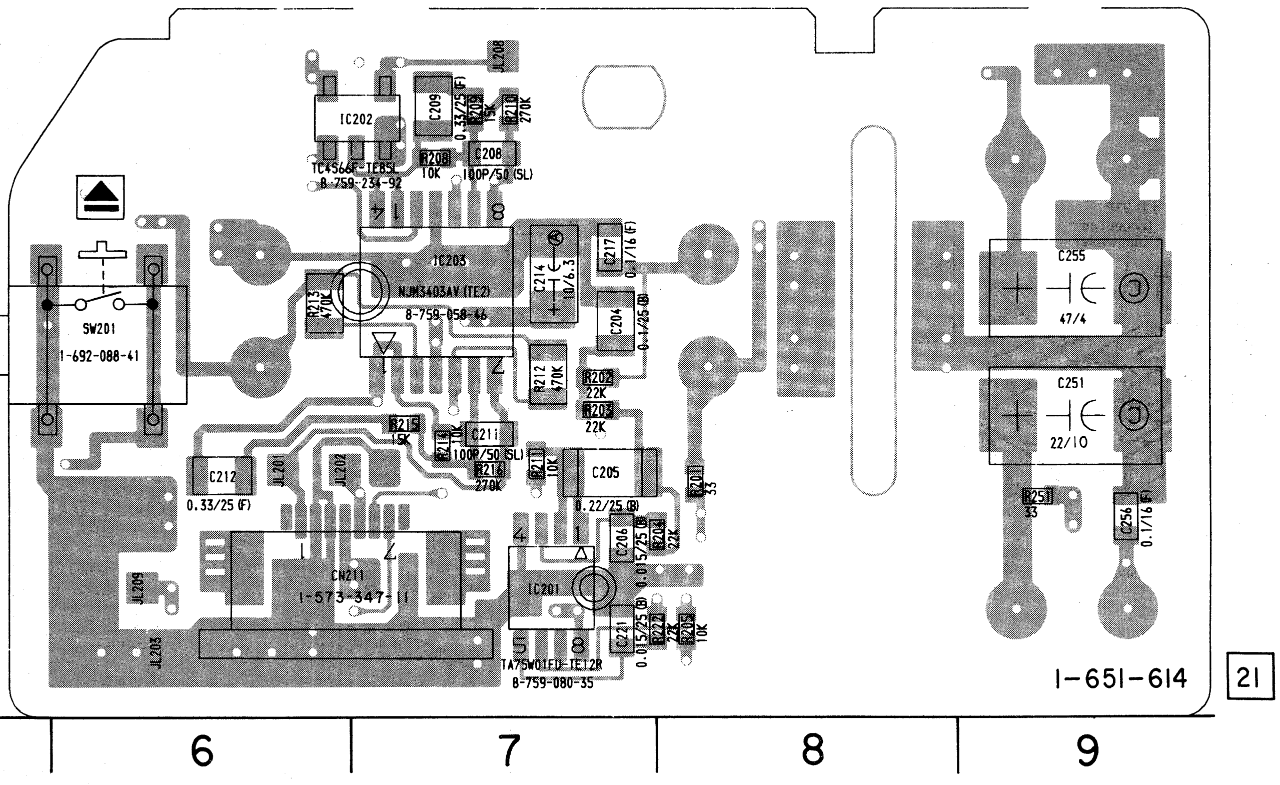

LND736
LND737
LND738
LND740
LND739
LND735
IC735
TC74HC164AF-TP1
8-759-236-45
IC736
Q735
2SC4081T106Q
1-651-620
21

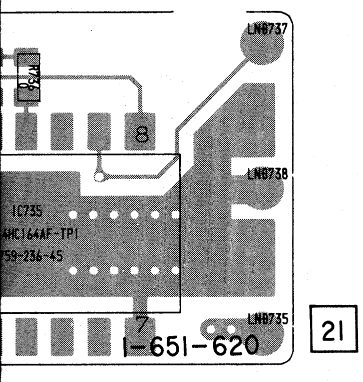
16


VF-61P
(RGB Decorder, LCD Drive)
FF-77P
(Back Light)
3P
Imager)
37P
era, Video, Servo)
VF-62P
(DC/AC
Converter)
SE-34P
(Eject Switch)
EZ-12P
(EASY Connector,
Charging Control)
MA-217P
(Mic Amplifier)
4P
Audio)


C203
22/10
R206 470K
R207 470K
SE002
3
2
C216
47/4
IC204
TC4S66F-TE85L
8-759-234-92
C210
33/10
C213
0.1/16 (F)
1-651-614
21
3
4

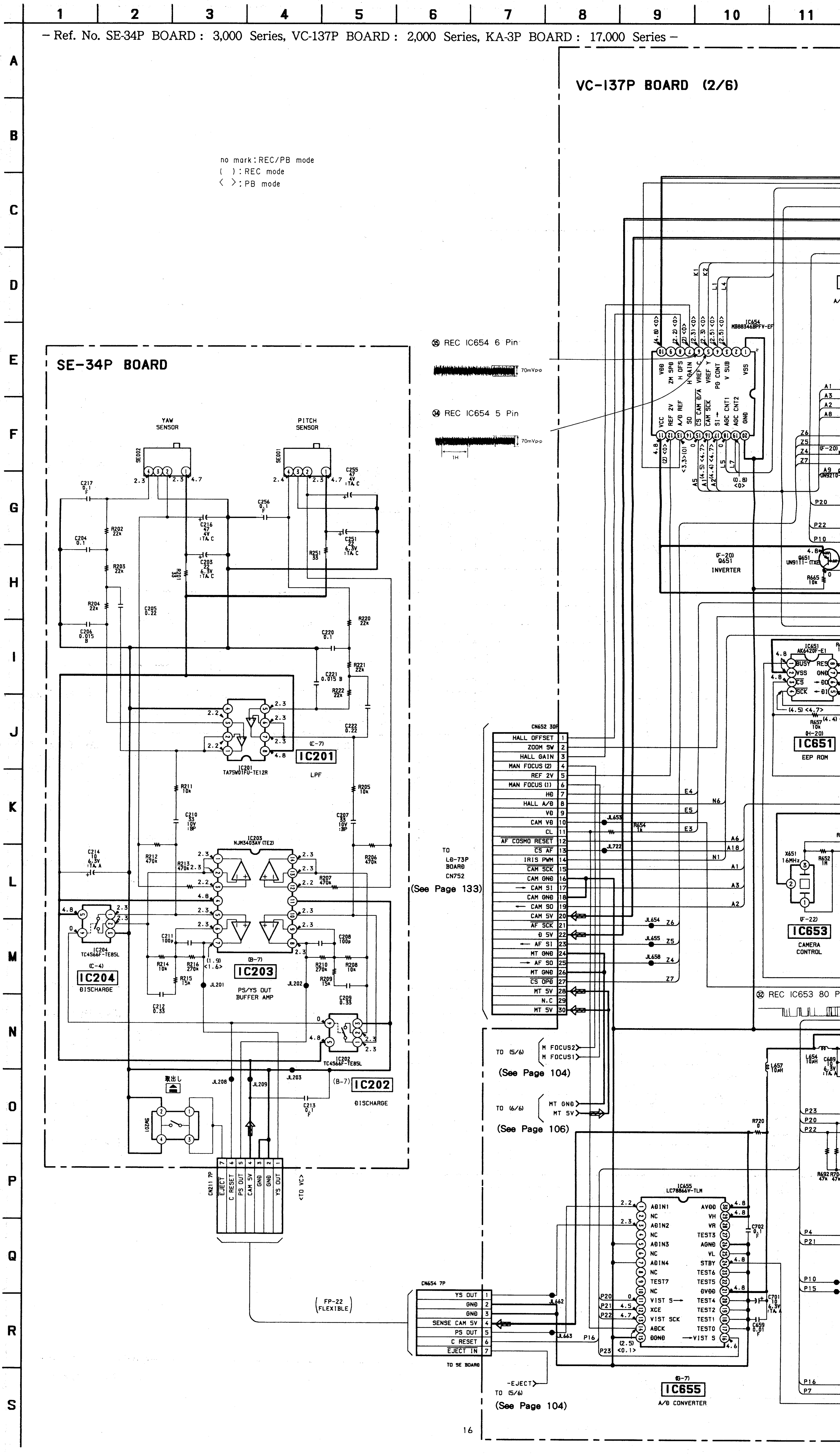
SE-34P BOARD – B SIDE –


IC202
TC4S66F-TE85L
8-759-234-92
C209
0.33/25 (F)
R209 15K
R211 270K
R208 10K
C208
100P/50 (SL)
JL208
IC203
NJM3403AV (TE2)
8-759-058-46
C214
10/6.3
C217
0.1/16 (F)
C204
0.1/25 (B)
R213 470K
R212 470K
R202 22K
R205 22K
SW201
1-692-088-41
R215 15K
R214 10K
C211
100P/50 (SL)
R216 270K
C205
0.22/25 (B)
R201 33
C212
0.33/25 (F)
JL201
JL202
CN211
1-573-347-11
JL209
JL203
IC201
TA75W01FU-TE12R
8-759-080-35
C206
0.015/25 (B)
R204 22K
C221
0.015/25 (B)
R203 10K
C255
47/4
C251
22/10
R251 33
C256
0.1/16 (F)
1-651-614
21
5
6
7
8
9


LND737
LND738
LND735
8
7
IC735
AHC164AF-TP1
759-236-45
1-651-620
21

SE-34P (EJECT SWITCH), VC-137P (CAMERA 2:SIGNAL CONTROL), KA-3P(BURST GATE) SCHEMATIC DIAGRAM • See

– Ref. No. SE-34P BOARD : 3,000 Series, VC-137P BOARD : 2,000 Series, KA-3P BOARD : 17,000 Series –


1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
R
S
VC-137P BOARD (2/6)
no mark : REC/PB mode
( ) : REC mode
< > : PB mode
SE-34P BOARD
YAW SENSOR
PITCH SENSOR
SE002
SE001
㉟ REC IC654 6 Pin
㉞ REC IC654 5 Pin
70mVp-p
1H
IC654 MB88346BPFV-EF
IC201 TA75W01FU-TE12R
LPF
IC201
IC203 NJM3403AV (TE2)
IC203
PS/YS OUT BUFFER AMP
IC204 TC4S66F-TE85L
IC204
DISCHARGE
IC202 TC4S66F-TE85L
IC202
DISCHARGE
S201
CN211 7P
EJECT
C RESET
PS OUT
CAM 5V
GND
GND
YS OUT
<TO VC>
CN652 30P
HALL OFFSET
ZOOM SW
HALL GAIN
MAN FOCUS (2)
REF 2V
MAN FOCUS (1)
HD
HALL A/D
VD
CAM VD
CL
AF COSMO RESET
CS AF
IRIS PWM
CAM SCK
CAM GND
CAM SI
CAM GND
CAM SO
CAM 5V
AF SCK
D 5V
AF SI
MT GND
AF SO
MT GND
CS DPG
MT 5V
N.C
MT 5V
TO LB-73P BOARD CN752
(See Page 133)
TO (5/6) M FOCUS2 M FOCUS1
(See Page 104)
TO (6/6) MT GND MT 5V
(See Page 106)
CN654 7P
YS OUT
GND
GND
SENSE CAM 5V
PS OUT
C RESET
EJECT IN
TO SE BOARD
FP-22 (FLEXIBLE)
-EJECT TO (5/6)
(See Page 104)
IC655 LC78866Y-TLN
IC655
A/D CONVERTER
Q651 UN9111-(TX)
INVERTER
IC651 AK6420F-E1
IC651
EEP ROM
IC653
CAMERA CONTROL
X651 16MHz
㉜ REC IC653 80 P

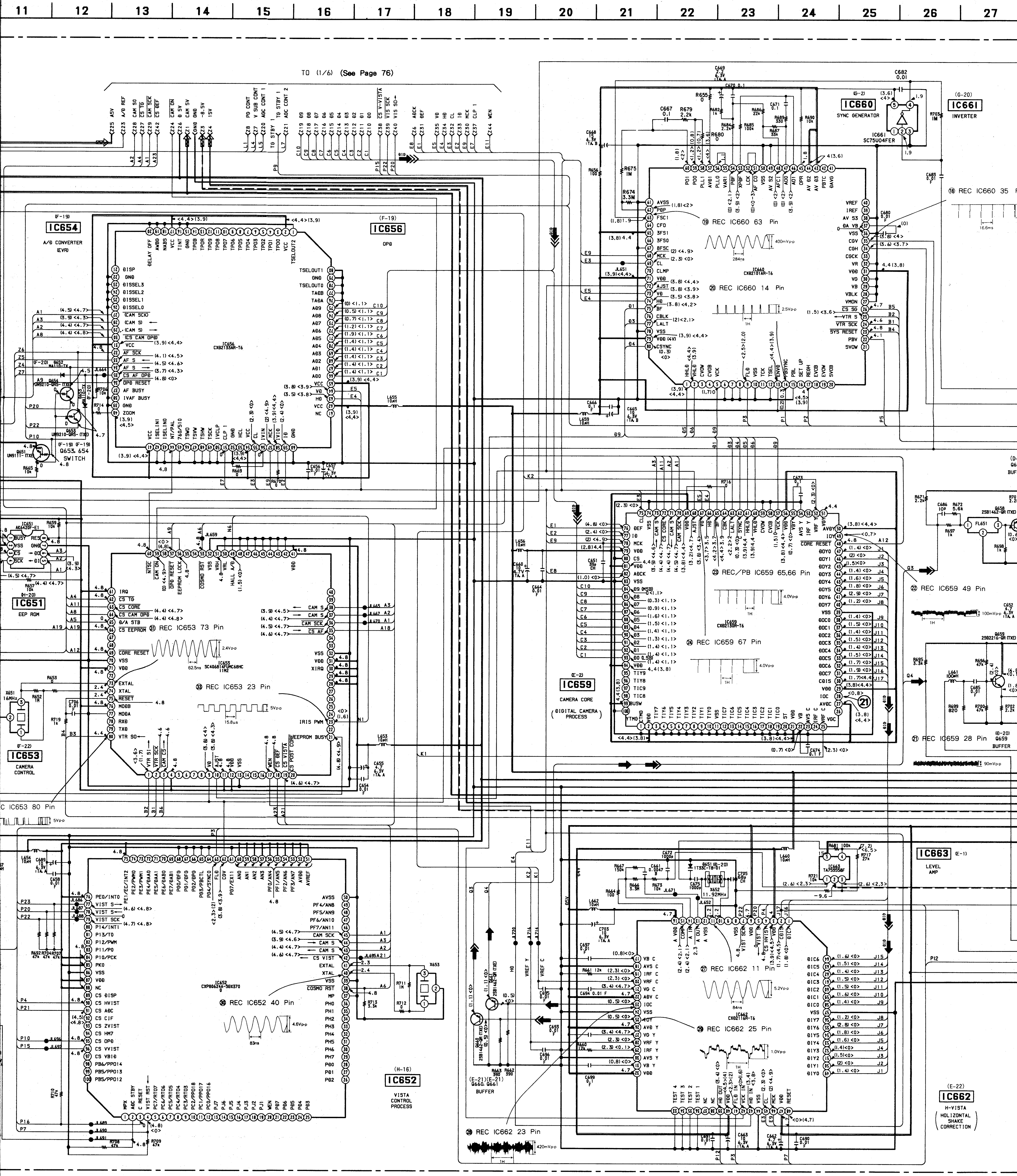
• SIGNAL PATH (ANALOG)

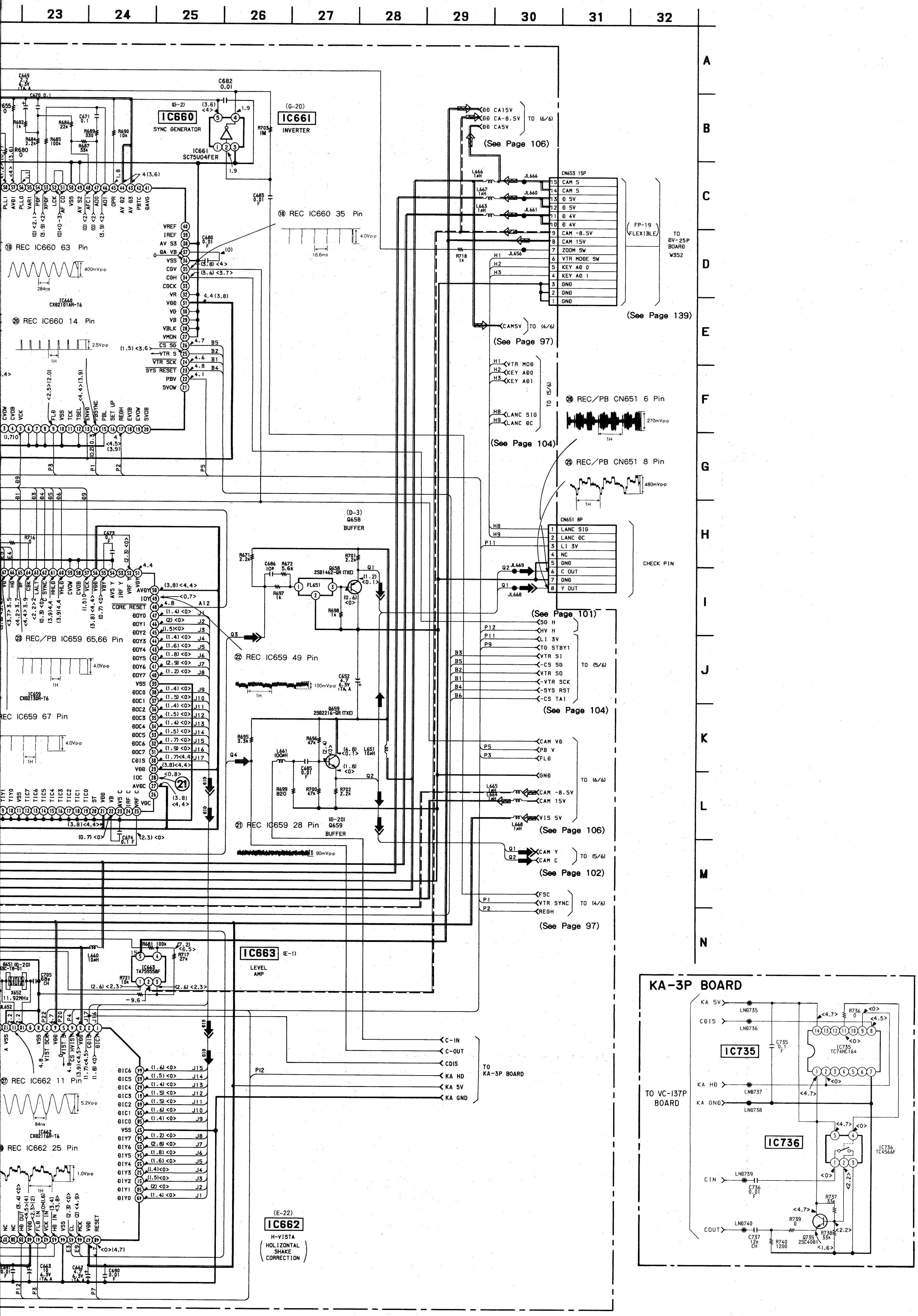
	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡»	➡»»	
PB	⇨	⇨»	⇨»»	

• SIGNAL PATH (DIGITAL)

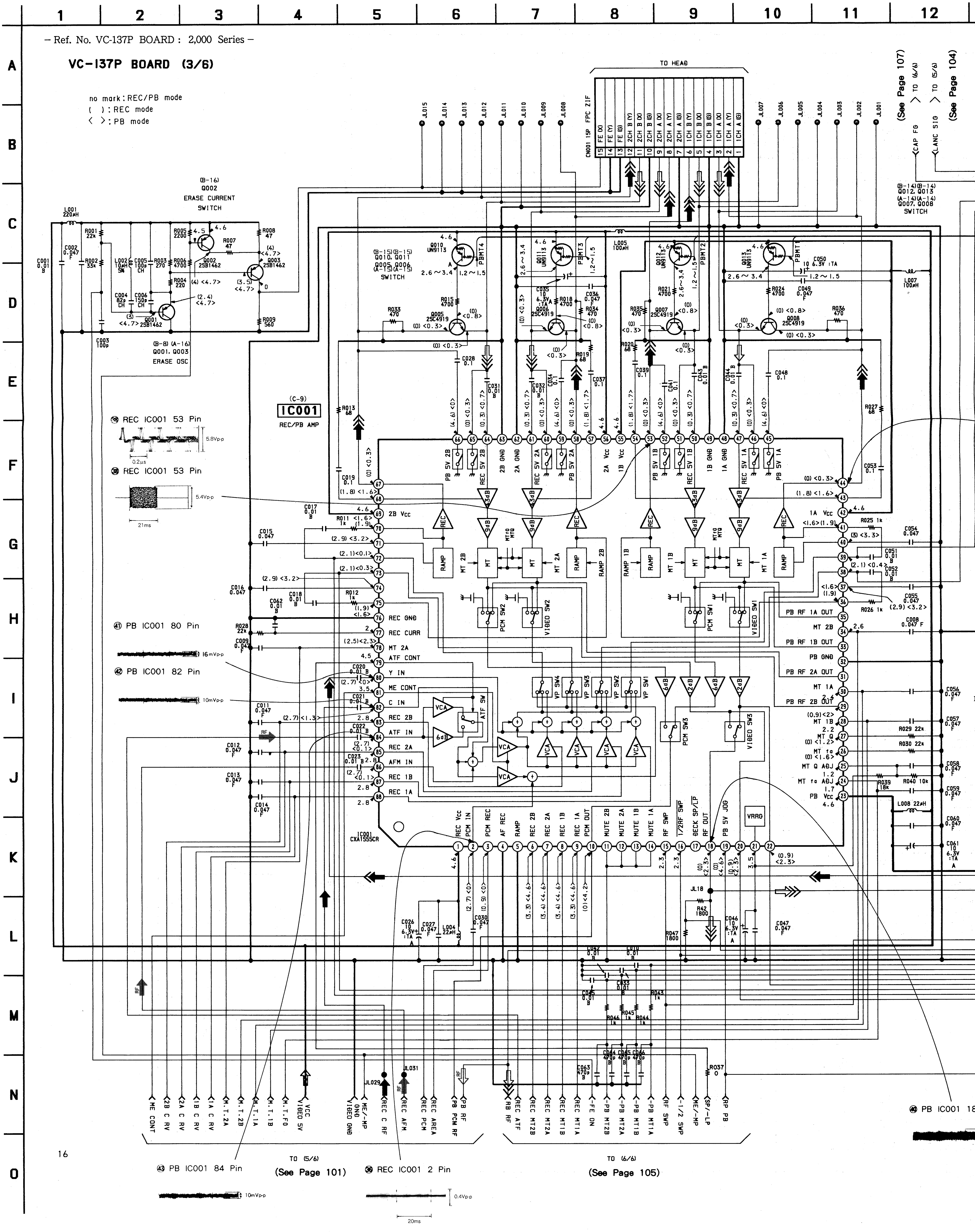
	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
WRITE	DIG ➡	DIG ➡»	DIG ➡»»	
READ	DIG ⇨	DIG ⇨»	DIG ⇨»»	

- **See page 79 for Printed Wiring Board on VC-137P board.**


11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
TO (1/6) (See Page 76)
IC654
A/D CONVERTER (EVR)
IC656
OPØ
IC656 CXD2133AN-T6
IC660
SYNC GENERATOR
IC661
INVERTER
IC661 SC75U04FER
IC660 CXD2101AR-T6
⑲ REC IC660 63 Pin
⑳ REC IC660 14 Pin
⑱ REC IC660 35
IC651
EEP ROM
IC653
CAMERA CONTROL
IC653 SC406814FU
㉛ REC IC653 73 Pin
㉝ REC IC653 23 Pin
C IC653 80 Pin
Q653, 654 SWITCH
IC659
CAMERA CORE (DIGITAL CAMERA PROCESS)
IC659 CXD2130R-T6
㉓ REC/PB IC659 65,66 Pin
㉔ REC IC659 67 Pin
㉒ REC IC659 49 Pin
㉑ REC IC659 28 Pin
Q659 BUFFER
IC652
VISTA CONTROL PROCESS
IC652 CXP80624A-50X370
㉚ REC IC652 40 Pin
IC663
LEVEL AMP
IC663 TA75558F
IC662
H-VISTA (HOLIZONTAL SHAKE CORRECTION)
IC662 CXD2116R-T6
㉗ REC IC662 11 Pin
㉙ REC IC662 25 Pin
㉘ REC IC662 23 Pin
Q660, Q661 BUFFER
X651 16MHz
X652 11.92MHz


23
24
25
26
27
28
29
30
31
32
A
B
C
D
E
F
G
H
I
J
K
L
M
N
IC660
SYNC GENERATOR
IC661
INVERTER
IC661 SC7S04FER
(G-2)
(G-20)
C682 0.01
⑱ REC IC660 35 Pin
⑲ REC IC660 63 Pin
⑳ REC IC660 14 Pin
IC660 CXD2101AR-T6
CN653 15P
CAM 5
CAM 5
D 5V
D 5V
D 4V
D 4V
CAM -8.5V
CAM 15V
ZOOM SW
VTR MODE SW
KEY AD 0
KEY AD 1
GND
GND
GND
FP-19 FLEXIBLE
TO DV-25P BOARD W352
(See Page 139)
D0 CA15V
D0 CA-8.5V
D0 CA5V
TO (6/6)
(See Page 106)
CAM5V
TO (4/6)
(See Page 97)
VTR MOD
KEY AD0
KEY AD1
LANC SIG
LANC DC
TO (5/6)
(See Page 104)
㉔ REC/PB CN651 6 Pin
㉕ REC/PB CN651 8 Pin
CN651 8P
LANC SIG
LANC DC
LI 3V
NC
GND
C OUT
GND
Y OUT
CHECK PIN
(D-3) Q658 BUFFER
Q658 2SB1462-QR (TXE)
(See Page 101)
SG H
HV H
LI 3V
TO STBY1
VTR SI
-CS SG
VTR SO
-VTR SCK
-SYS RST
-CS TA1
TO (5/6)
(See Page 104)
㉒ REC IC659 49 Pin
㉓ REC/PB IC659 65,66 Pin
REC IC659 67 Pin
IC659 CXD2130R-T6
Q659 2SB2216-QR (TXE)
CAM VD
PB V
FLD
GND
CAM -8.5V
CAM 15V
VIS 5V
TO (6/6)
(See Page 106)
㉑ REC IC659 28 Pin
(D-20) Q659 BUFFER
CAM Y
CAM C
TO (5/6)
(See Page 102)
FSC
VTR SYNC
REGH
TO (4/6)
(See Page 97)
IC663
(E-1)
LEVEL AMP
IC663 TA75S558F
C-IN
C-OUT
CDIS
KA HD
KA 5V
KA GND
TO KA-3P BOARD
㉗ REC IC662 11 Pin
REC IC662 25 Pin
IC662 CXD2110R-T6
(E-22)
IC662
H-VISTA HORIZONTAL SHAKE CORRECTION
X652 11.92MHz
KA-3P BOARD
KA 5V
CDIS
KA HD
KA GND
CIN
COUT
TO VC-137P BOARD
IC735
IC735 TC74HC164
IC736
IC736 TC4S66F
Q735 2SC4081

VC-137P (VIDEO 1:RP CONTROL/Hi8/NORMAL SELECTOR) SCHEMATIC DIAGRAM • See page 79 for Printed Wiring Board on VC-137P board.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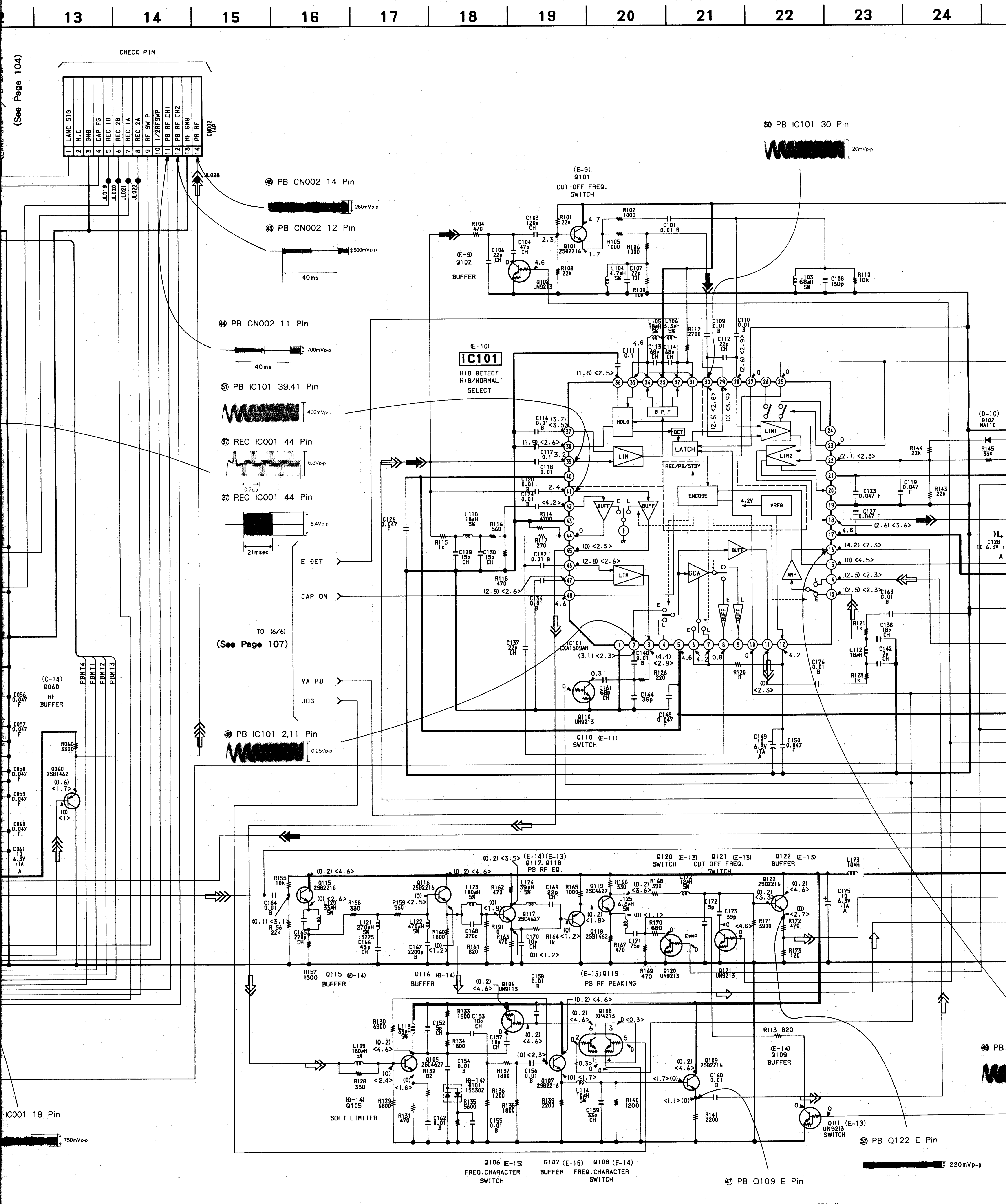
– Ref. No. VC-137P BOARD : 2,000 Series –
VC-137P BOARD (3/6)
no mark : REC/PB mode
( ) : REC mode
< > : PB mode
TO HEAD
CN001 15P FPC ZIF
FE (X)
FE (Y)
FE (G)
2CH B (Y)
2CH B (X)
2CH B (G)
2CH A (Y)
2CH A (X)
2CH A (G)
1CH B (Y)
1CH B (X)
1CH B (G)
1CH A (X)
1CH A (Y)
1CH A (G)
(B-16) Q002 ERASE CURRENT SWITCH
(B-8) (A-16) Q001, Q003 ERASE OSC
(B-15)(B-15) Q010, Q011 Q005, Q006 (A-15)(A-15) SWITCH
(B-14)(B-14) Q012, Q013 (A-14)(A-14) Q007, Q008 SWITCH
(C-9) IC001 REC/PB AMP
IC001 CXA1555CR
CAP FG
LANC SIG
TO (6/6) (See Page 107)
TO (5/6) (See Page 104)
㊴ REC IC001 53 Pin
5.8Vp-p
0.2μs
㊳ REC IC001 53 Pin
5.4Vp-p
21ms
㊶ PB IC001 80 Pin
16mVp-p
㊷ PB IC001 82 Pin
10mVp-p
㊸ PB IC001 84 Pin
10mVp-p
㊱ REC IC001 2 Pin
0.4Vp-p
20ms
㊵ PB IC001 18
ME CONT
2B C RV
2A C RV
1B C RV
1A C RV
M.T.2A
M.T.2B
M.T.1A
M.T.1B
M.T.FO
VCC VIDEO 5V
VIDEO GND
ME/MP
REC C RF
REC AFM
REC AREA
REC PCM
PB PCM RF
PB RF
RB RF
REC ATF
REC MT2B
REC MT2A
REC MT1B
REC MT1A
FE ON
PB MT2B
PB MT2A
PB MT1B
PB MT1A
RF SWP
1/2 SWP
ME/MP
SP/LP
RP PB
TO (5/6) (See Page 101)
TO (6/6) (See Page 105)
16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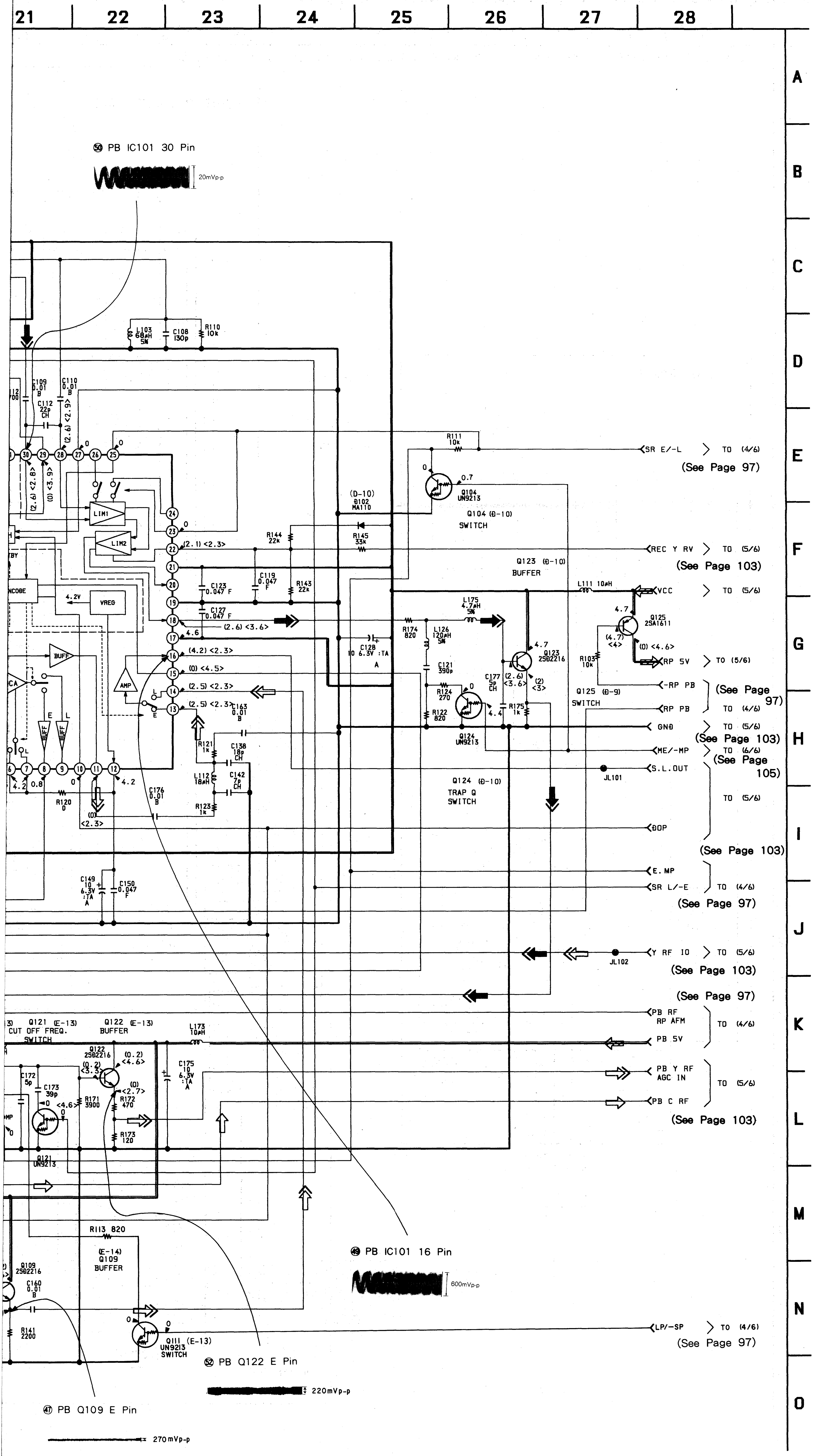
(See Page 104)
CHECK PIN
LANC SIG
N.C
GND
CAP FG
REC 1B
REC 2B
REC 1A
REC 2A
RF SW P
1/2RF SWP
PB RF CH1
PB RF CH2
RF GND
PB RF
CN002 14P
JL019
JL020
JL021
JL022
JL028
(46) PB CN002 14 Pin
260mVp-p
(45) PB CN002 12 Pin
500mVp-p
40ms
(44) PB CN002 11 Pin
700mVp-p
40ms
(51) PB IC101 39,41 Pin
400mVp-p
(37) REC IC001 44 Pin
5.8Vp-p
0.2μs
(37) REC IC001 44 Pin
5.4Vp-p
21msec
E DET
CAP ON
TO (6/6)
(See Page 107)
VA PB
JOG
(48) PB IC101 2,11 Pin
0.25Vp-p
(50) PB IC101 30 Pin
20mVp-p
(E-9) Q101 CUT-OFF FREQ. SWITCH
(F-9) Q102 BUFFER
(E-10) IC101
H18 DETECT H18/NORMAL SELECT
IC101 CXA1509AR
HOLD
BPF
DET
LATCH
LIM
LIM1
LIM2
REC/PB/STBY
ENCODE
VREG
BUFF
GCA
AMP
Q110 (E-11) SWITCH
(D-10) D102 MA110
(C-14) Q060 RF BUFFER
Q060 2SB1462
PBMT4
PBMT1
PBMT2
PBMT3
(E-14)(E-13) Q117, Q118 PB RF EQ.
Q120 (E-13) SWITCH
Q121 (E-13) CUT OFF FREQ. SWITCH
Q122 (E-13) BUFFER
Q115 (D-14) BUFFER
Q116 (D-14) BUFFER
(E-13)Q119 PB RF PEAKING
(D-14) Q105 SOFT LIMITER
(E-14) Q109 BUFFER
Q111 (E-13) UN9213 SWITCH
Q106 (E-15) FREQ.CHARACTER SWITCH
Q107 (E-15) BUFFER
Q108 (E-14) FREQ.CHARACTER SWITCH
(52) PB Q122 E Pin
220mVp-p
(47) PB Q109 E Pin
270mVp-p
IC001 18 Pin
750mVp-p
(49) PB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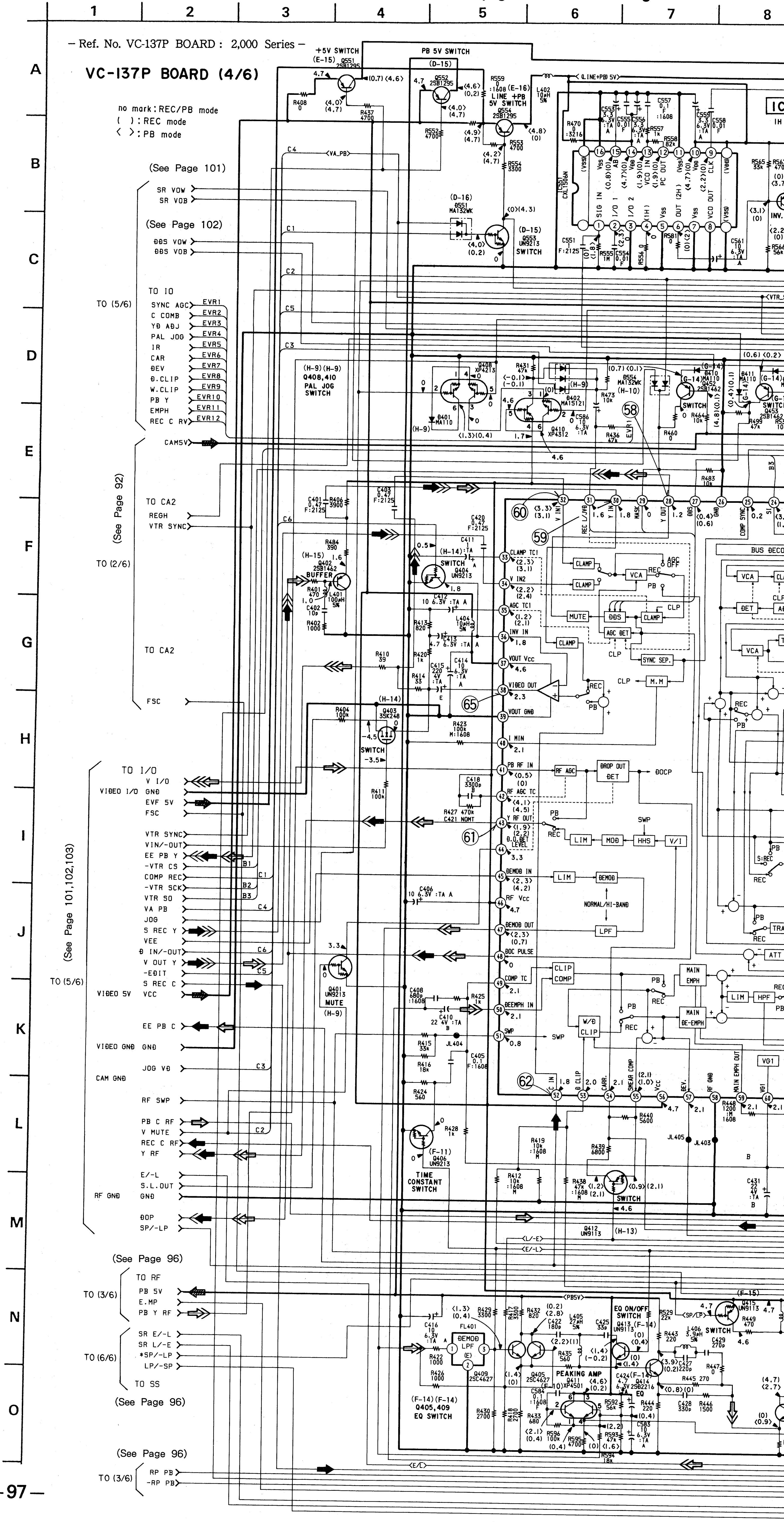
(50) PB IC101 30 Pin
20mVp-p
L103 68μH 5%
C108 130p
R110 10k
C109 0.01 B
C110 0.01 B
C112 22p CH
LIM1
LIM2
VREG
BUFF
AMP
R111 10k
Q104 UN9213
Q104 (B-10) SWITCH
(D-10) D102 MA110
R144 22k
R145 33k
C123 0.047 F
C119 0.047 F
R143 22k
C127 0.047 F
C128 10 6.3V :TA
R174 820
L126 120μH 5%
L175 4.7μH 5%
C121 390p
R124 270
R122 820
C177 5p CH
R175 1k
Q123 (B-10) BUFFER
Q123 2SD2216
Q124 UN9213
Q124 (B-10) TRAP Q SWITCH
L111 10μH
Q125 2SA1611
R103 10k
Q125 (B-9) SWITCH
C163 0.01 B
R121 1k
C138 18p CH
L112 18μH
C142 7p CH
C176 0.01 B
R123 1k
R120 0
C149 10 6.3V :TA
C150 0.047 F
JL101
JL102
SR E/-L
TO (4/6)
(See Page 97)
REC Y RV
TO (5/6)
(See Page 103)
VCC
TO (5/6)
RP 5V
TO (5/6)
-RP PB
RP PB
(See Page 97)
TO (4/6)
GND
TO (5/6)
(See Page 103)
ME/-MP
TO (6/6)
(See Page 105)
S.L.OUT
TO (5/6)
DOP
(See Page 103)
E.MP
SR L/-E
TO (4/6)
(See Page 97)
Y RF IO
TO (5/6)
(See Page 103)
(See Page 97)
PB RF
RP AFM
TO (4/6)
PB 5V
PB Y RF
AGC IN
TO (5/6)
PB C RF
(See Page 103)
Q121 (E-13) CUT OFF FREQ. SWITCH
Q122 (E-13) BUFFER
Q122 2SD2216
L173 10μH
C172 5p
C173 39p
R171 3900
R172 470
R173 120
C175 10 6.3V :TA
Q121 UN9213
R113 820
(E-14) Q109 BUFFER
Q109 2SD2216
C160 0.01 B
R141 2200
Q111 UN9213 (E-13) SWITCH
LP/-SP
TO (4/6)
(See Page 97)
(49) PB IC101 16 Pin
600mVp-p
(52) PB Q122 E Pin
220mVp-p
(47) PB Q109 E Pin
270mVp-p

• SIGNAL PATH (ANALOG)

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡»	➡»»	➡
PB	⇨	⇨»	⇨»»	⇨

VC-137P (VIDEO 2:Y/CHROMA PROCESS) SCHEMATIC DIAGRAM • See page 79 for Printed Wiring Board on VC-137P b



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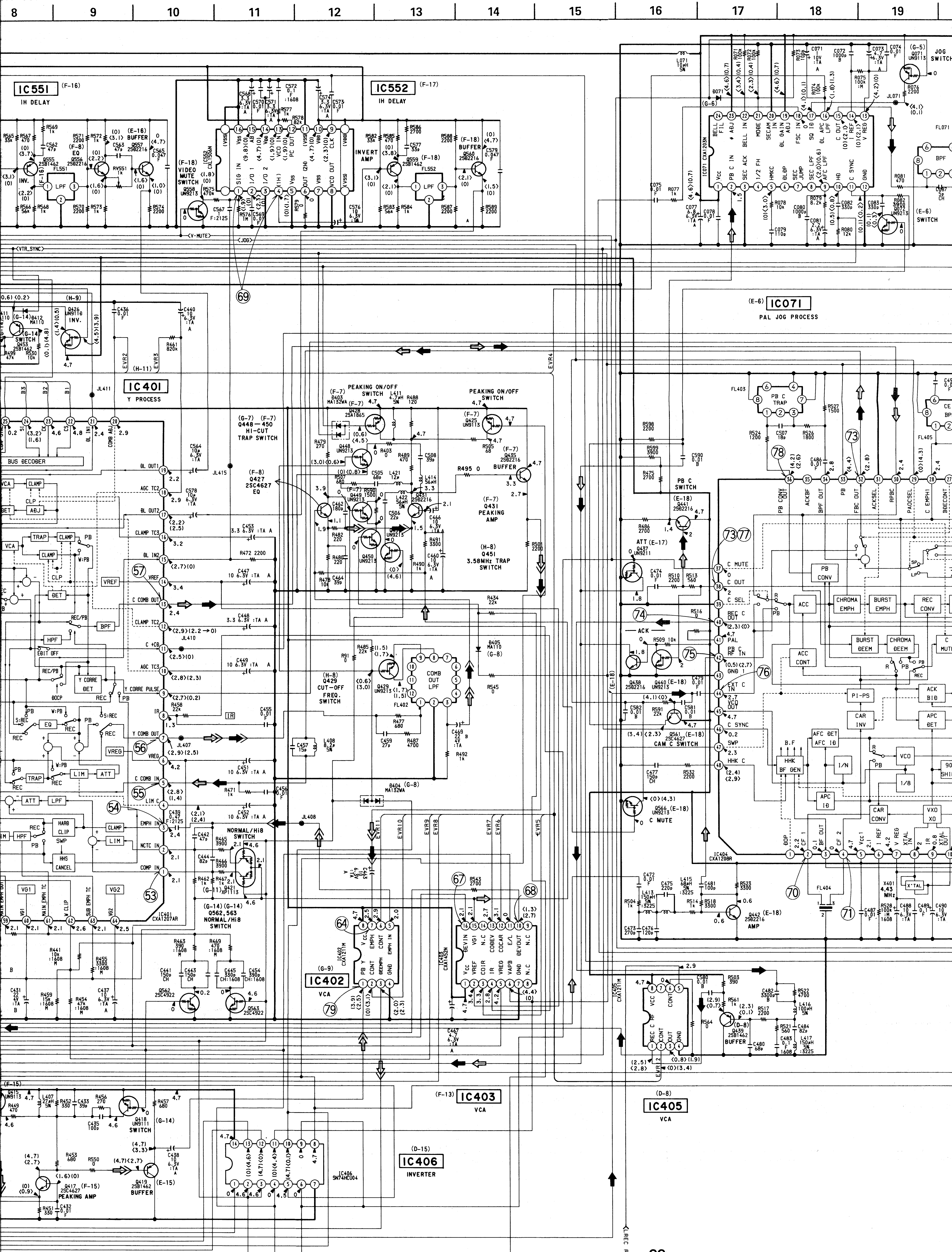
- Ref. No. VC-137P BOARD : 2,000 Series -
VC-137P BOARD (4/6)
no mark : REC/PB mode
( ) : REC mode
< > : PB mode
(See Page 101)
SR VDW
SR VDB
(See Page 102)
DDS VDW
DDS VDB
TO (5/6)
TO IO
SYNC AGC
C COMB
YD ADJ
PAL JOG
IR
CAR
DEV
D.CLIP
W.CLIP
PB Y
EMPH
REC C RV
EVR1
EVR2
EVR3
EVR4
EVR5
EVR6
EVR7
EVR8
EVR9
EVR10
EVR11
EVR12
CAM5V
(See Page 92)
TO CA2
REGH
VTR SYNC
TO (2/6)
TO CA2
FSC
TO I/O
VIDEO I/O
V I/O
GND
EVF 5V
FSC
VTR SYNC
VIN/-OUT
EE PB Y
-VTR CS
COMP REC
-VTR SCK
VTR SO
VA PB
JOG
S REC Y
VEE
D IN/-OUT
V OUT Y
-EDIT
S REC C
VIDEO 5V
VCC
(See Page 101,102,103)
TO (5/6)
EE PB C
VIDEO GND
GND
JOG VD
CAM GND
RF SWP
PB C RF
V MUTE
REC C RF
Y RF
E/-L
S.L.OUT
RF GND
GND
DOP
SP/-LP
(See Page 96)
TO (3/6)
TO RF
PB 5V
E.MP
PB Y RF
TO (6/6)
SR E/-L
SR L/-E
*SP/-LP
LP/-SP
TO SS
(See Page 96)
(See Page 96)
TO (3/6)
RP PB
-RP PB
+5V SWITCH
Q551 2SB1295
PB 5V SWITCH
Q552 2SB1295
LINE +PB 5V SWITCH
Q554 2SB1295
IC551 CXL1504N
Q553 UN9213 SWITCH
D551 MA132WK
Q408,410 PAL JOG SWITCH
Q408 XP4213
Q410 XP4312
D401 MA110
D402 MA151Z1
D554 MA132WK
Q452 2SB1462
Q453 2SB1462
Q402 2SB1462 BUFFER
Q404 UN9213 SWITCH
Q403 3SK248 SWITCH
Q401 UN9213 MUTE
Q406 UN9213 TIME CONSTANT SWITCH
Q412 UN9113 SWITCH
Q405,409 EQ SWITCH
Q405 2SC4627
Q409 2SC4627
Q411 XP4501 PEAKING AMP
Q413 UN9113 EQ ON/OFF SWITCH
Q414 2SB2216 EQ
Q415 UN9113 SWITCH
FL401 DEMOD LPF
CLAMP
VCA
AGC OFF
MUTE
DDS
AGC DET
CLP
SYNC SEP.
M.M
RF AGC
DROP OUT DET
DOCP
LIM
MOD
HHS
V/I
DEMOD
NORMAL/HI-BAND
LPF
CLIP COMP
MAIN EMPH
MAIN DE-EMPH
W/D CLIP
HPF
BUS DECO
ATT
VG1
REC
PB
SWP

-97-

- **SIGNAL PATH (ANALOG)**

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡»	➡»»	
PB	⇨	⇨»	⇨»»	

37P board.



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IC551 (F-16) IH DELAY
IC552 (F-17) IH DELAY
IC552 CXL1506N
IC071 (E-6) PAL JOG PROCESS
IC071 CXA1203M
JOG SWITCH
Q071 UN9113
Q072 UN9213 (E-6) SWITCH
VIDEO MUTE SWITCH Q558 UN9213 (F-18)
Q555 2SB1462 INV.
Q556 2SC2216 EQ (F-8)
Q557 2SB2216 BUFFER (E-16)
Q559 2SB1462 INVERT AMP (F-18)
Q560 2SB2216 BUFFER (F-18)
FL551 LPF
FL552 LPF
RV551
<V·MUTE>
<JOG>
<VTR_SYNC>
69
IC401 (H-11) Y PROCESS
IC401 CXA1207AR
Q426 UN9110 INV. (H-9)
Q453 2SB1462 SWITCH (G-14)
BUS DECODER
CLAMP
CLP
ABJ
VCA
DET
TRAP
VREF
BPF
HPF
EQ
VREG
LIM
ATT
LPF
HARB CLIP
SWP
HHS CANCEL
VG1
VG2
Y CORRE DET
Y CORRE PULSE
DOCP
EDIT OFF
MAIN EMPH TC
W CLIP
SUB EMPH TC
53
54
55
56
57
PEAKING ON/OFF SWITCH Q428 2SA1865 (F-7)
PEAKING ON/OFF SWITCH Q425 UN9113 (F-7)
Q448–450 HI-CUT TRAP SWITCH (G-7) (F-7)
Q427 2SC4627 EQ (F-8)
Q435 2SB2216 BUFFER (F-7)
Q431 PEAKING AMP (F-7)
Q451 3.58MHz TRAP SWITCH (H-8)
Q429 CUT-OFF FREQ. SWITCH (H-8)
COMB OUT LPF
FL402
D403 MA132WA
D404 MA132WA (G-8)
D405 MA110 (G-8)
NORMAL/Hi8 SWITCH Q421 XP1113 (G-11)
Q562, 563 NORMAL/Hi8 SWITCH (G-14) (G-14)
Q562 2SC4922
Q563 2SC4922
EVR1
EVR2
EVR3
EVR4
EVR5
EVR6
EVR7
EVR8
EVR9
EVR10
EVR11
IC402 (G-9) VCA
IC402 CXA1271M
IC403 (F-13) VCA
IC403 CXA1452N
IC405 (D-8) VCA
IC405 CXA1271M
IC406 (D-15) INVERTER
IC406 SN74HCU04
64
67
68
79
PB C TRAP
FL403
FL405
FL404
PB C SWITCH Q441 2SB2216 (E-18)
ATT Q437 UN9211 (E-17)
ACK
CAM C SWITCH Q561 2SC4627 (E-18)
C MUTE Q566 UN9213 (E-18)
Q438 2SB2216
Q440 UN9213 (E-18)
Q442 2SB2216 AMP (E-18)
Q439 2SB1462 BUFFER (D-8)
IC404 CXA1208R
PB CONV
ACC
CHROMA EMPH
BURST EMPH
REC CONV
BURST DEEM
CHROMA DEEM
ACC CONT
PI-PS
ACK BID
CAR INV
APC DET
AFC DET
AFC ID
HHK BF GEN
I/N
VCO
1/8
APC ID
CAR CONV
VXO XO
X'TAL
X401 4.43 MHz
70
71
73
73 77
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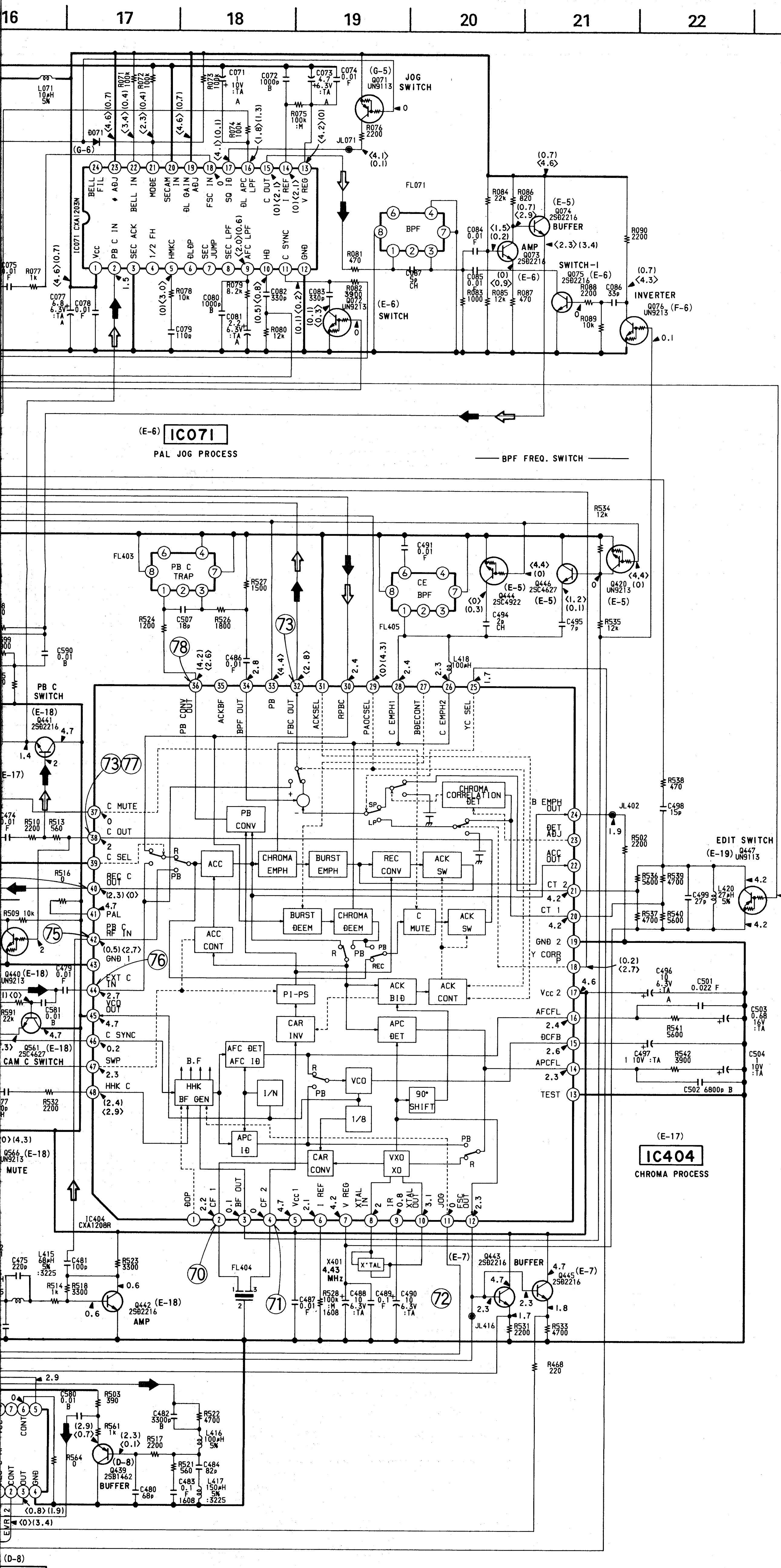
Q415 UN9113
Q418 UN9111 SWITCH (G-14)
Q417 2SC4627 PEAKING AMP (F-15)
Q419 2SB1462 BUFFER (E-15)
LREC RF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JOG SWITCH
Q071 UN9113
IC071 CXA1203N
(E-6) IC071
PAL JOG PROCESS
FL071
BPF
AMP
Q073 2SD2216
Q074 2SD2216
BUFFER
SWITCH-1
Q075 2SD2216
INVERTER
Q076 UN9213
(E-6) SWITCH
Q072 UN9213
BPF FREQ. SWITCH
FL403
PB C TRAP
FL405
CE BPF
Q444 2SC4922
Q446 2SC4627
Q420 UN9213
PB C SWITCH
Q441 2SD2216
EDIT SWITCH
Q447 UN9113
IC404 CXA1208R
(E-17) IC404
CHROMA PROCESS
PB CONV
CHROMA EMPH
BURST EMPH
REC CONV
ACK SW
ACC
ACC CONT
BURST DEEM
CHROMA DEEM
C MUTE
CHROMA CORRELATION DET
PI-PS
CAR INV
ACK BID
ACK CONT
APC DET
AFC DET
AFC ID
HHK BF GEN
I/N
VCO
1/8
90° SHIFT
APC ID
CAR CONV
VXO XO
FL404
X401 4.43 MHz
BUFFER
Q443 2SD2216
Q445 2SD2216
Q442 2SD2216
AMP
Q440 UN9213
CAM C SWITCH
Q561 2SC4627
Q566 UN9213
MUTE
Q439 2SB1462
BUFFER
IC405
VCA
(70)
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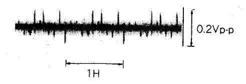
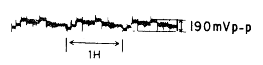
(78)

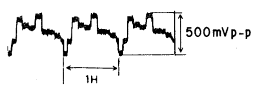
(53) REC/PB IC401 1 Pin



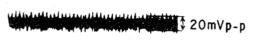
(68) REC IC403 10 Pin



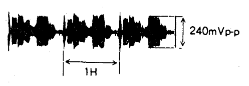
(54) REC/PB IC401 3 Pin



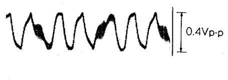
(69) REC IC552 1,4 Pin



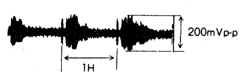
(55) PB IC401 5 Pin



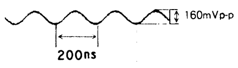
(70) REC/PB IC404 2 Pin



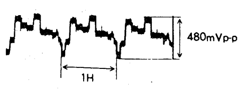
(55) REC IC401 5 Pin



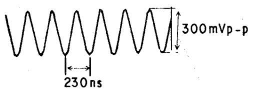
(71) REC/PB IC404 4 Pin



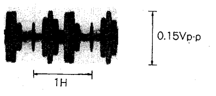
(56) REC/PB IC401 7 Pin



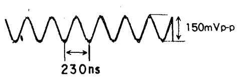
(72) PB IC404 8 Pin



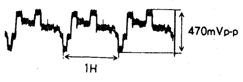
(57) REC/PB IC401 13 Pin



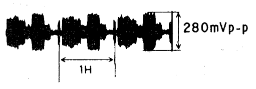
(72) REC IC404 8 Pin



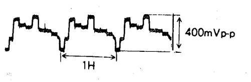
(58) REC/PB IC401 28 Pin



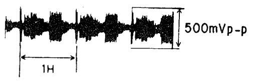
(73) REC/PB IC404 32,38 Pin



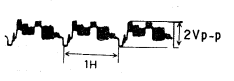
(59) REC/PB IC401 30 Pin



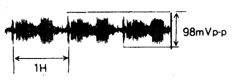
(74) REC IC404 40 Pin



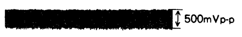
(60) REC/PB IC401 32 Pin



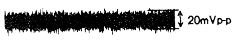
(75) PB IC404 42 Pin



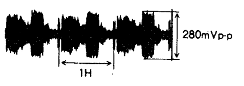
(61) REC IC401 43 Pin



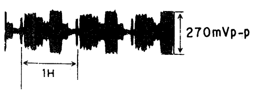
(75) REC IC404 42 Pin



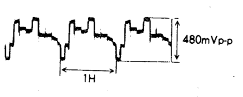
(62) REC/PB IC401 52 Pin



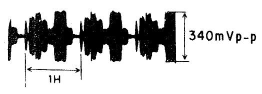
(76) REC IC404 44 Pin



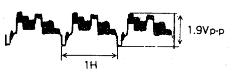
(64) REC/PB IC402 7 Pin



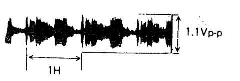
(77) PB IC404 38 Pin



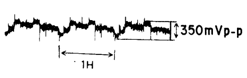
(65) PB IC401 38 Pin



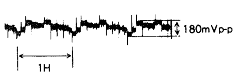
(78) PB IC404 36 Pin



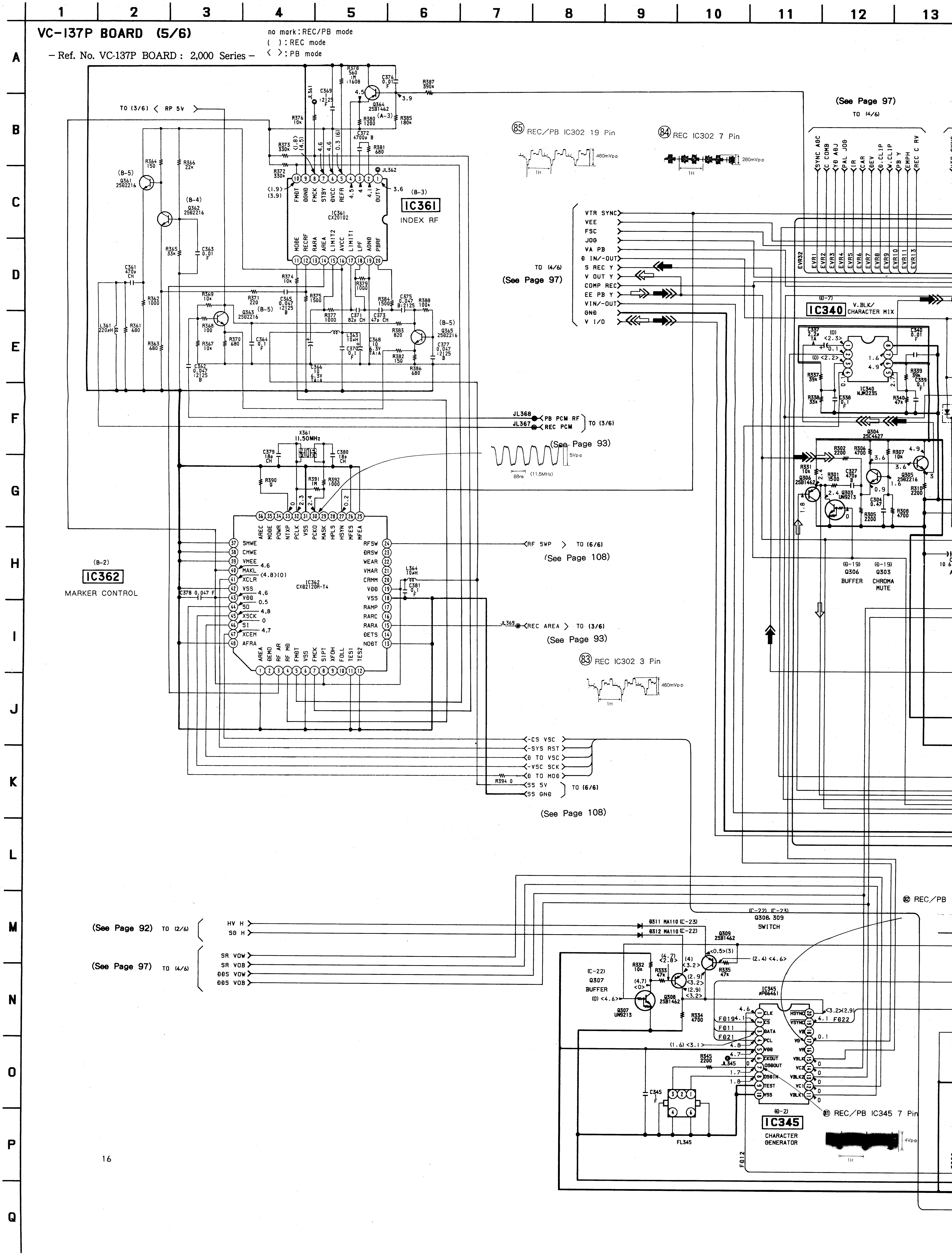
(67) PB IC403 16 Pin

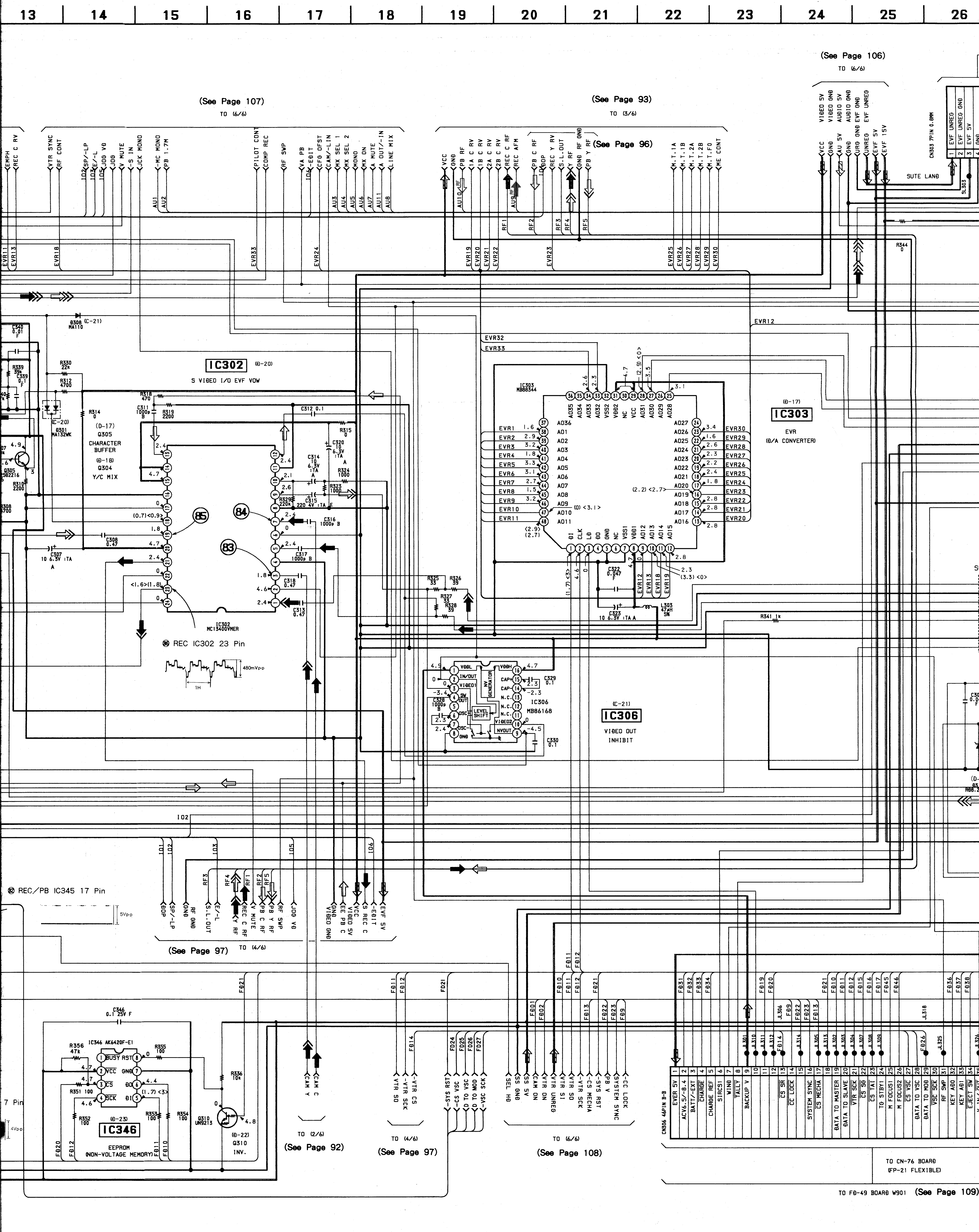


(79) PB IC402 1 Pin



VC-137P (VIDEO 3:I/O) SCHEMATIC DIAGRAM • See page 79 for Printed Wiring Board on VC-137P board.


VC-137P BOARD (5/6)
– Ref. No. VC-137P BOARD : 2,000 Series –
no mark : REC/PB mode
( ) : REC mode
< > : PB mode
TO (3/6) < RP 5V
IC361
INDEX RF
CX20102
IC362
MARKER CONTROL
CX02120R-T4
X361 11.50MHz
IC340
V.BLK/ CHARACTER MIX
NJM2235
IC345
CHARACTER GENERATOR
FL345
(85) REC/PB IC302 19 Pin
460mVp-p
(84) REC IC302 7 Pin
280mVp-p
(83) REC IC302 3 Pin
460mVp-p
(81) REC/PB IC345 7 Pin
4Vp-p
(82) REC/PB
(See Page 97)
TO (4/6)
VTR SYNC
VEE
FSC
JOG
VA PB
B IN/-OUT
S REC Y
V OUT Y
COMP REC
EE PB Y
VIN/-OUT
GND
V I/O
SYNC AGC
C COMB
Y0 ADJ
PAL JOG
IR
CAR
DEV
D.CLIP
W.CLIP
PB Y
EMPH
REC C RV
JL368 PB PCM RF
JL367 REC PCM
TO (3/6)
(See Page 93)
88ns (11.5MHz)
5Vp-p
RF SWP TO (6/6)
(See Page 108)
JL369 REC AREA TO (3/6)
(See Page 93)
CS VSC
SYS RST
B TO VSC
VSC SCK
B TO MOD
SS 5V
SS GND
TO (6/6)
(See Page 108)
(See Page 92) TO (2/6)
HV H
SG H
(See Page 97) TO (4/6)
SR VOW
SR VOB
BOS VOW
BOS VOB
Q306 BUFFER
Q303 CHROMA MUTE
Q307 BUFFER
Q308, 309 SWITCH
D311 MA110
D312 MA110
16


13
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19
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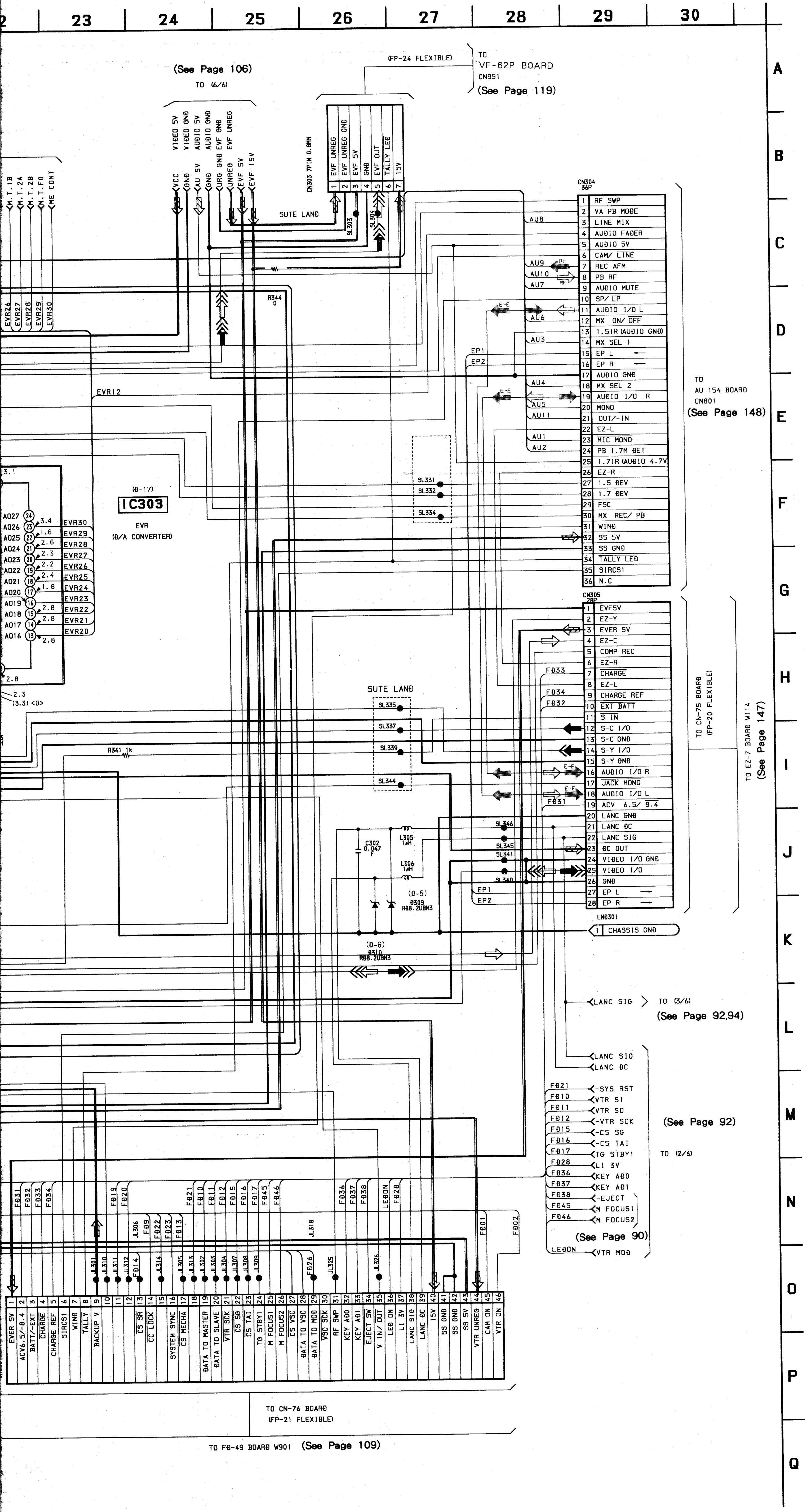
21
22
23
24
25
26
(See Page 107)
TO (6/6)
(See Page 93)
TO (3/6)
(See Page 96)
(See Page 106)
TO (6/6)
CN303 7PIN 0.8MM
EVF UNREG
EVF UNREG GND
EVF 5V
SUTE LAND
VIDEO 5V
VIDEO GND
AUDIO 5V
AUDIO GND
EVF UNREG
VCC
GND
AU 5V
GND
URG GND EVF GND
UNREG
EVF 5V
EVF 15V
R344 0
EVR12
EVR32
EVR33
IC302
(B-20)
S VIDEO I/O EVF VOW
IC302 MC13400VMER
Q305 CHARACTER BUFFER
Q304 Y/C MIX
D301 MA132WK
D308 MA110
REC IC302 23 Pin
480mVp-p
1H
IC303 MB88344
IC303
(B-17)
EVR
(D/A CONVERTER)
IC306 MB86168
IC306
(C-21)
VIDEO OUT INHIBIT
VDDL
IN/OUT
VIDEO1
SW OUT
OSC
GND
VDDH
CAP+
CAP-
N.C.
VIDEO2
NVOUT
LEVEL SHIFT
INV GENERATOR
R341 1k
L303 47μH
REC/PB IC345 17 Pin
5Vp-p
BOP
SP/-LP
RF GND
S.L.OUT
E/-L
Y RF
REC C RF
V MUTE
PB C RF
PB Y RF
RF SWP
JOG VD
GND VIDEO GND
EE PB C
VCC VIDEO 5V
S REC C
-EDIT
EVF 5V
(See Page 97)
TO (4/6)
IC346 AK6420F-E1
BUSY RST
VCC GND
CS DO
SCK DI
IC346
(B-23)
EEPROM
(NON-VOLTAGE MEMORY)
Q310 UN9213
(B-22)
Q310
INV.
C346 0.1 25V F
CAM Y
CAM C
TO (2/6)
(See Page 92)
VTR SO
-VTR CS
VTR SCK
TO (4/6)
(See Page 97)
-SYS RST
-CS VSC
D TO VSC
D TO MOD
-VSC SCK
SEL HD
SS GND
SS 5V
CAM ON
VTR ON
VTR UNREG
VTR SI
VTR SO
-VTR SCK
-CS MECHA
-SYS RST
PB V
SYSTEM SYNC
-CC LOCK
TO (6/6)
(See Page 108)
CN306 46PIN B-B
EVER 5V
ACV6.5/-8.4
BATT/-EXT
CHARGE
CHARGE REF
SIRCS1
WIND
TALLY
BACKUP V
CS SR
CC LOCK
SYSTEM SYNC
CS MECHA
DATA TO MASTER
DATA TO SLAVE
VTR SCK
CS SG
CS TAI
TG STBY1
M FOCUS1
M FOCUS2
CS VSC
DATA TO MOD
VSC SCK
RF SWP
KEY AD0
KEY AD1
EJECT SW
TO CN-76 BOARD
(FP-21 FLEXIBLE)
TO FD-49 BOARD W901 (See Page 109)


23
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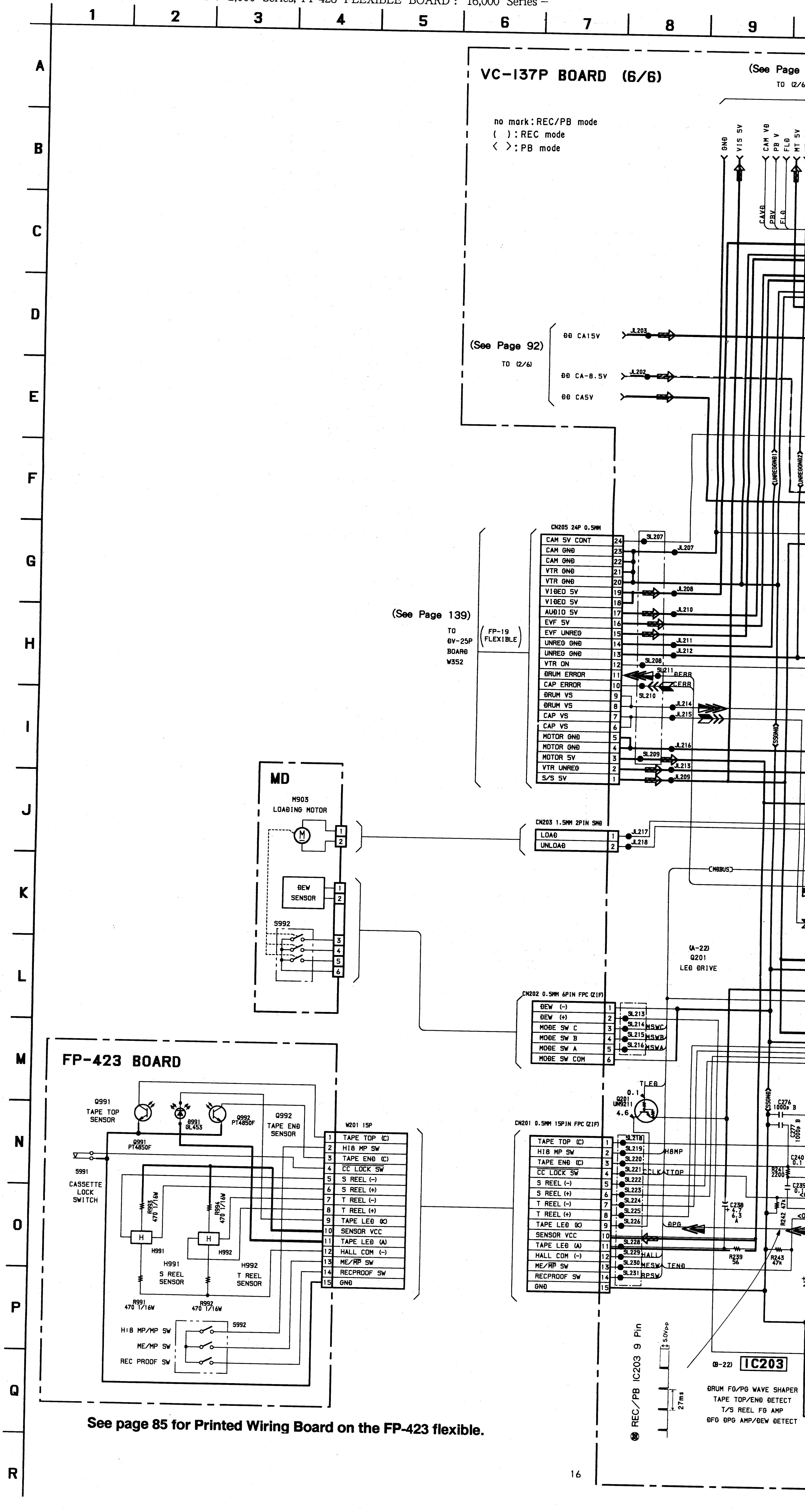
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
(See Page 106)
TO (6/6)
VIDEO 5V
VIDEO GND
AUDIO 5V
AUDIO GND
GND EVF GND
EVF UNREG
(FP-24 FLEXIBLE)
TO
VF-62P BOARD
CN951
(See Page 119)
CN303 7PIN 0.8MM
1 EVF UNREG
2 EVF UNREG GND
3 EVF 5V
4 GND
5 EVF OUT
6 TALLY LED
7 15V
SUTE LAND
CN304
36P
1 RF SWP
2 VA PB MODE
3 LINE MIX
4 AUDIO FADER
5 AUDIO 5V
6 CAM/ LINE
7 REC AFM
8 PB RF
9 AUDIO MUTE
10 SP/ LP
11 AUDIO I/O L
12 MX ON/ OFF
13 1.5IR (AUDIO GND)
14 MX SEL 1
15 EP L
16 EP R
17 AUDIO GND
18 MX SEL 2
19 AUDIO I/O R
20 MONO
21 OUT/-IN
22 EZ-L
23 MIC MONO
24 PB 1.7M DET
25 1.7IR (AUDIO 4.7V)
26 EZ-R
27 1.5 DEV
28 1.7 DEV
29 FSC
30 MX REC/ PB
31 WIND
32 SS 5V
33 SS GND
34 TALLY LED
35 SIRCS1
36 N.C
TO
AU-154 BOARD
CN801
(See Page 148)
IC303
(D-17)
EVR
(D/A CONVERTER)
R344
R341
CN305
28P
1 EVF5V
2 EZ-Y
3 EVER 5V
4 EZ-C
5 COMP REC
6 EZ-R
7 CHARGE
8 EZ-L
9 CHARGE REF
10 EXT BATT
11 S IN
12 S-C I/O
13 S-C GND
14 S-Y I/O
15 S-Y GND
16 AUDIO I/O R
17 JACK MONO
18 AUDIO I/O L
19 ACV 6.5/ 8.4
20 LANC GND
21 LANC DC
22 LANC SIG
23 DC OUT
24 VIDEO I/O GND
25 VIDEO I/O
26 GND
27 EP L
28 EP R
TO CN-75 BOARD
(FP-20 FLEXIBLE)
TO EZ-7 BOARD W114
(See Page 147)
LND301
1 CHASSIS GND
C302
0.047
L305
L306
(D-5)
D309
(D-6)
D310
LANC SIG
TO (3/6)
(See Page 92,94)
LANC SIG
LANC DC
SYS RST
VTR SI
VTR SO
VTR SCK
CS SG
CS TAI
TG STBY1
LI 3V
KEY AD0
KEY AD1
EJECT
M FOCUS1
M FOCUS2
(See Page 92)
TO (2/6)
(See Page 90)
VTR MOD
1 EVER 5V
2 ACV6.5/-8.4
3 BATT/-EXT
4 CHARGE
5 CHARGE REF
6 SIRCS1
7 WIND
8 TALLY
9 BACKUP V
13 CS SR
14 CC LOCK
16 SYSTEM SYNC
17 CS MECHA
18 DATA TO MASTER
19 DATA TO SLAVE
20 VTR SCK
21 CS SG
22 CS TAI
23 TG STBY1
24 M FOCUS1
25 M FOCUS2
26 CS VSC
27 DATA TO VSC
28 DATA TO MOD
29 VSC SCK
30 RF SWP
31 KEY AD0
32 KEY AD1
33 EJECT SW
34 V IN/ OUT
35 LED ON
36 LI 3V
37 LANC SIG
38 LANC DC
39 15V
40 SS GND
41 SS GND
42 SS 5V
43 VTR UNREG
44 CAM ON
45 VTR ON
TO CN-76 BOARD
(FP-21 FLEXIBLE)
TO FD-49 BOARD W901 (See Page 109)

• SIGNAL PATH (ANALOG)

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡»	➡»»	➡
PB	⇨	⇨»	⇨»»	⇨

VC-137P (SERVO CONTROL), FP-423 FLEXIBLE (TAPE TOP/END SENSOR, SWITCH) SCHEMATIC DIAGRAM • See p

– Ref. No. VC-137P BOARD : 2,000 Series, FP-423 FLEXIBLE BOARD : 16,000 Series –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A
B
C
D
E
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G
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I
J
K
L
M
N
O
P
Q
R
VC-137P BOARD (6/6)
no mark : REC/PB mode
( ) : REC mode
〈 〉 : PB mode
(See Page
TO (2/6
GND
VIS 5V
CAM VD
PB V
FLD
MT 5V
(See Page 92)
TO (2/6)
DD CA15V
DD CA-8.5V
DD CA5V
JL203
JL202
(See Page 139)
TO
DV-25P
BOARD
W352
FP-19
FLEXIBLE
CN205 24P 0.5MM
CAM 5V CONT
CAM GND
CAM GND
VTR GND
VTR GND
VIDEO 5V
VIDEO 5V
AUDIO 5V
EVF 5V
EVF UNREG
UNREG GND
UNREG GND
VTR ON
DRUM ERROR
CAP ERROR
DRUM VS
DRUM VS
CAP VS
CAP VS
MOTOR GND
MOTOR GND
MOTOR 5V
VTR UNREG
S/S 5V
MD
M903
LOADING MOTOR
DEW
SENSOR
S992
CN203 1.5MM 2PIN SHD
LOAD
UNLOAD
(A-22)
Q201
LED DRIVE
CN202 0.5MM 6PIN FPC (ZIF)
DEW (-)
DEW (+)
MODE SW C
MODE SW B
MODE SW A
MODE SW COM
FP-423 BOARD
Q991
TAPE TOP
SENSOR
D991
GL453
Q992
PT4850F
Q992
TAPE END
SENSOR
Q991
PT4850F
S991
CASSETTE
LOCK
SWITCH
R993
470 1/16W
R994
470 1/16W
H991
S REEL
SENSOR
H992
T REEL
SENSOR
R991
470 1/16W
R992
470 1/16W
H18 MP/MP SW
ME/MP SW
REC PROOF SW
S992
W201 15P
TAPE TOP (C)
H18 MP SW
TAPE END (C)
CC LOCK SW
S REEL (-)
S REEL (+)
T REEL (-)
T REEL (+)
TAPE LED (K)
SENSOR VCC
TAPE LED (A)
HALL COM (-)
ME/MP SW
RECPROOF SW
GND
CN201 0.5MM 15PIN FPC (ZIF)
TAPE TOP (C)
H18 MP SW
TAPE END (C)
CC LOCK SW
S REEL (-)
S REEL (+)
T REEL (-)
T REEL (+)
TAPE LED (K)
SENSOR VCC
TAPE LED (A)
HALL COM (-)
ME/MP SW
RECPROOF SW
GND
Q201
UN9211
REC/PB IC203 9 Pin
5.0Vp-p
27ms
(B-22)
IC203
DRUM FG/PG WAVE SHAPER
TAPE TOP/END DETECT
T/S REEL FG AMP
DFG DPG AMP/DEW DETECT
16

See page 85 for Printed Wiring Board on the FP-423 flexible.

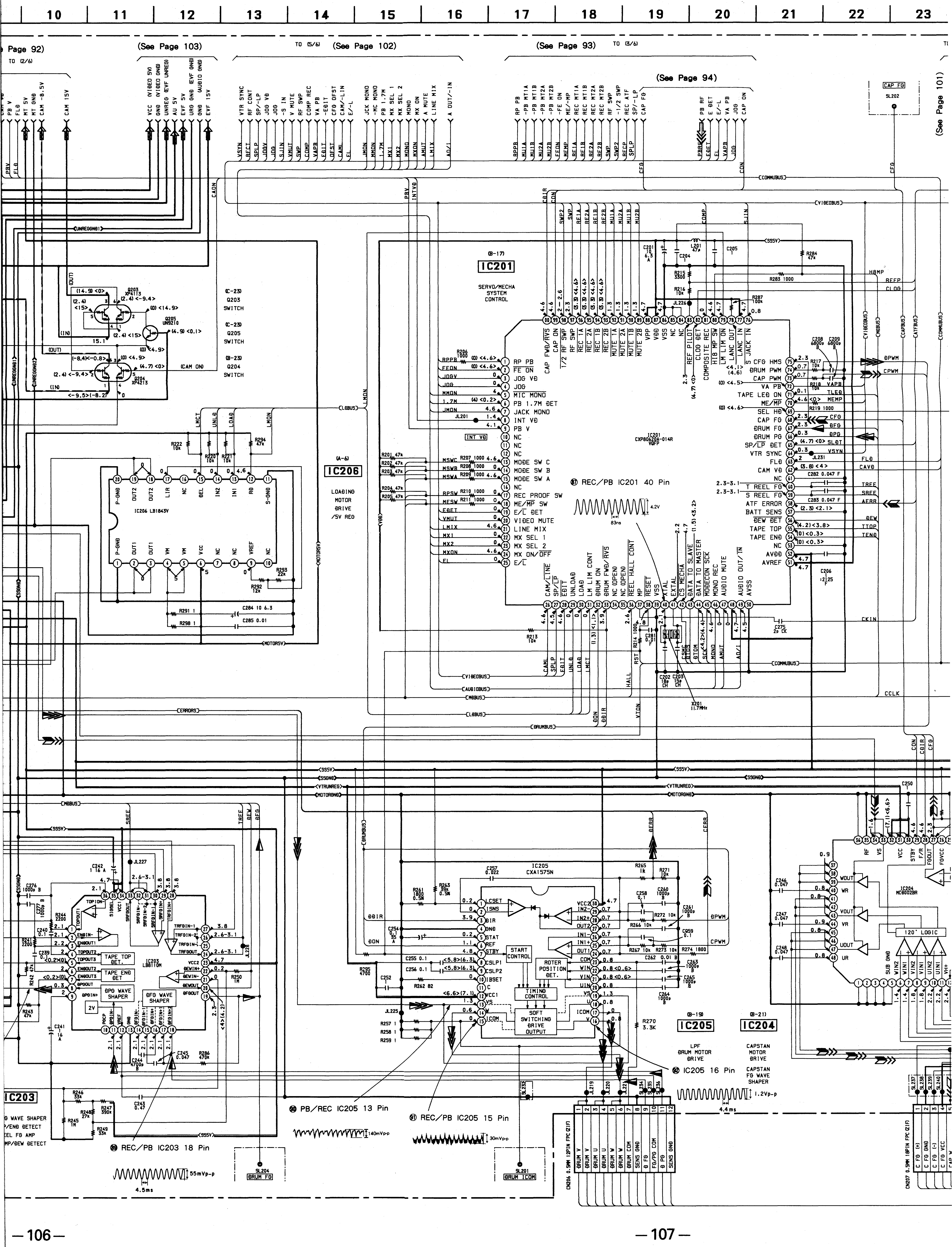
• SIGNAL PATH (ANALOG)

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡»	➡»»	
PB	⇨	⇨»	⇨»»	

• SIGNAL PATH

	REC	REC/PB	PB
Drum speed servo		▷	
Drum phase servo		▷»	
Drum servo (speed and phase)		▷»»	
Capstan speed servo			
Capstan phase servo	➤»	➤»	▷»
Capstan servo (speed and phase)		➤»»	
Ref. signal			

See page 79 for Printed Wiring Board on VC-137P board. • See page 85 for Printed Wiring Board on the FP-423 flexible.



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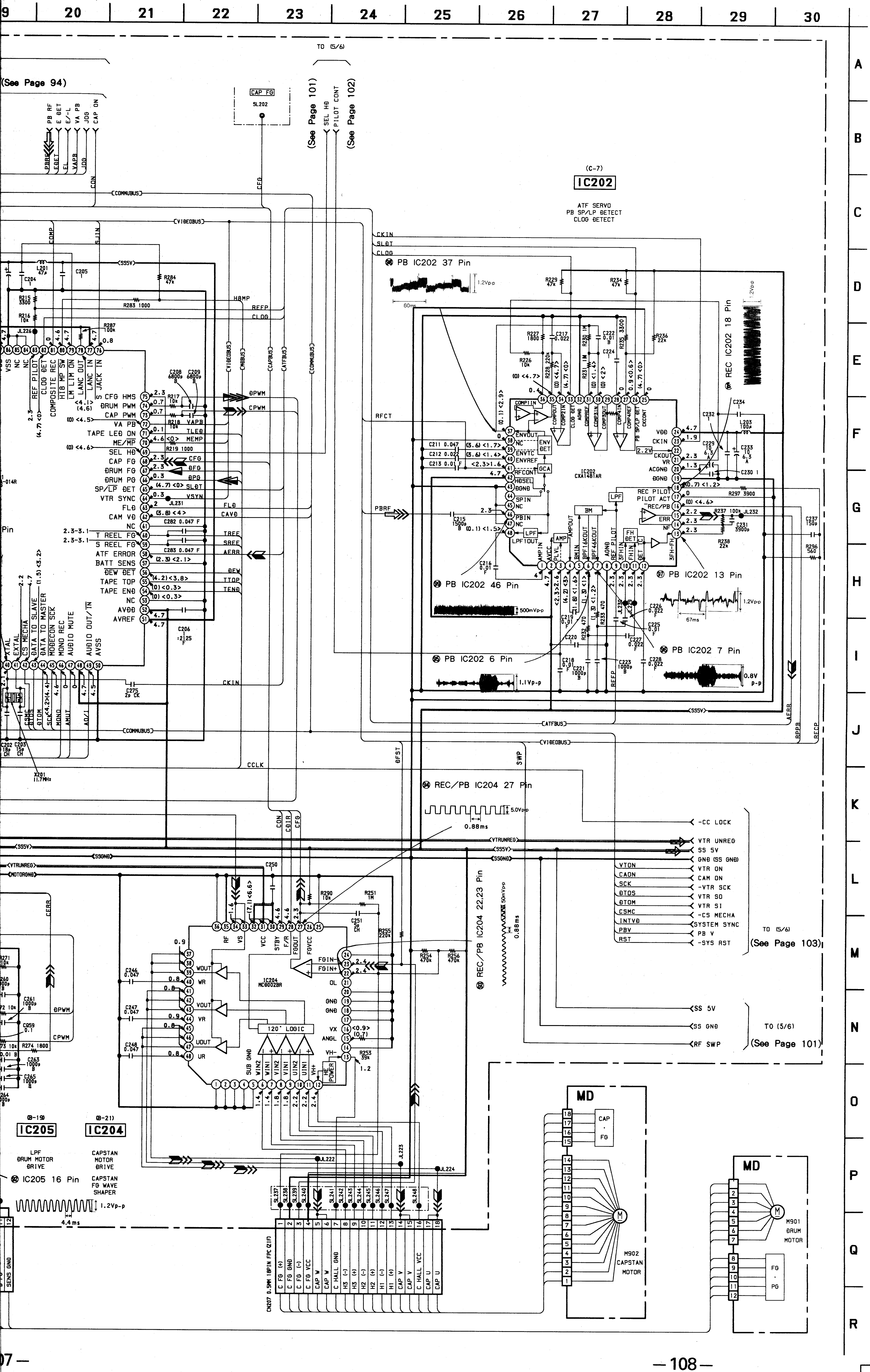
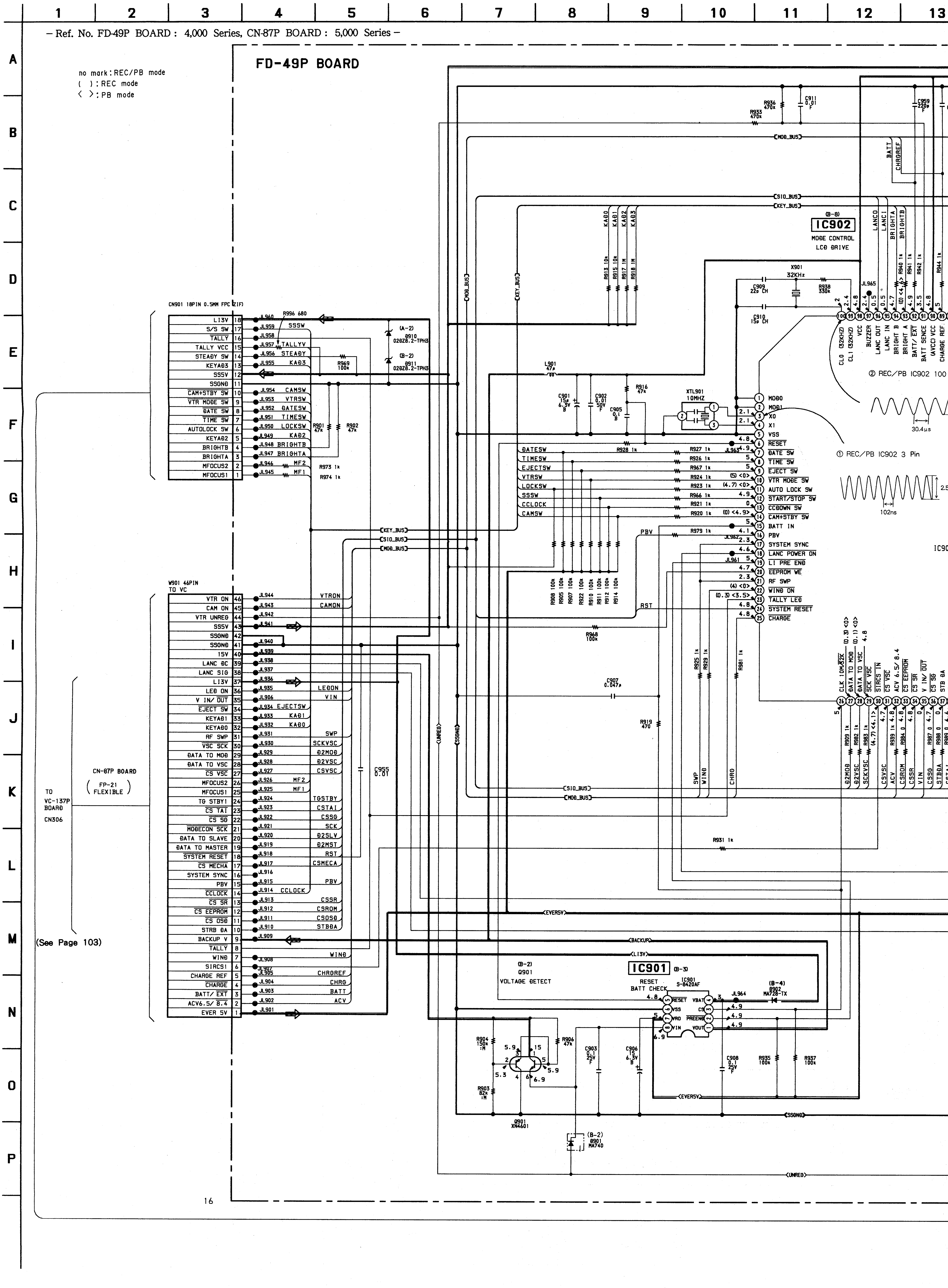
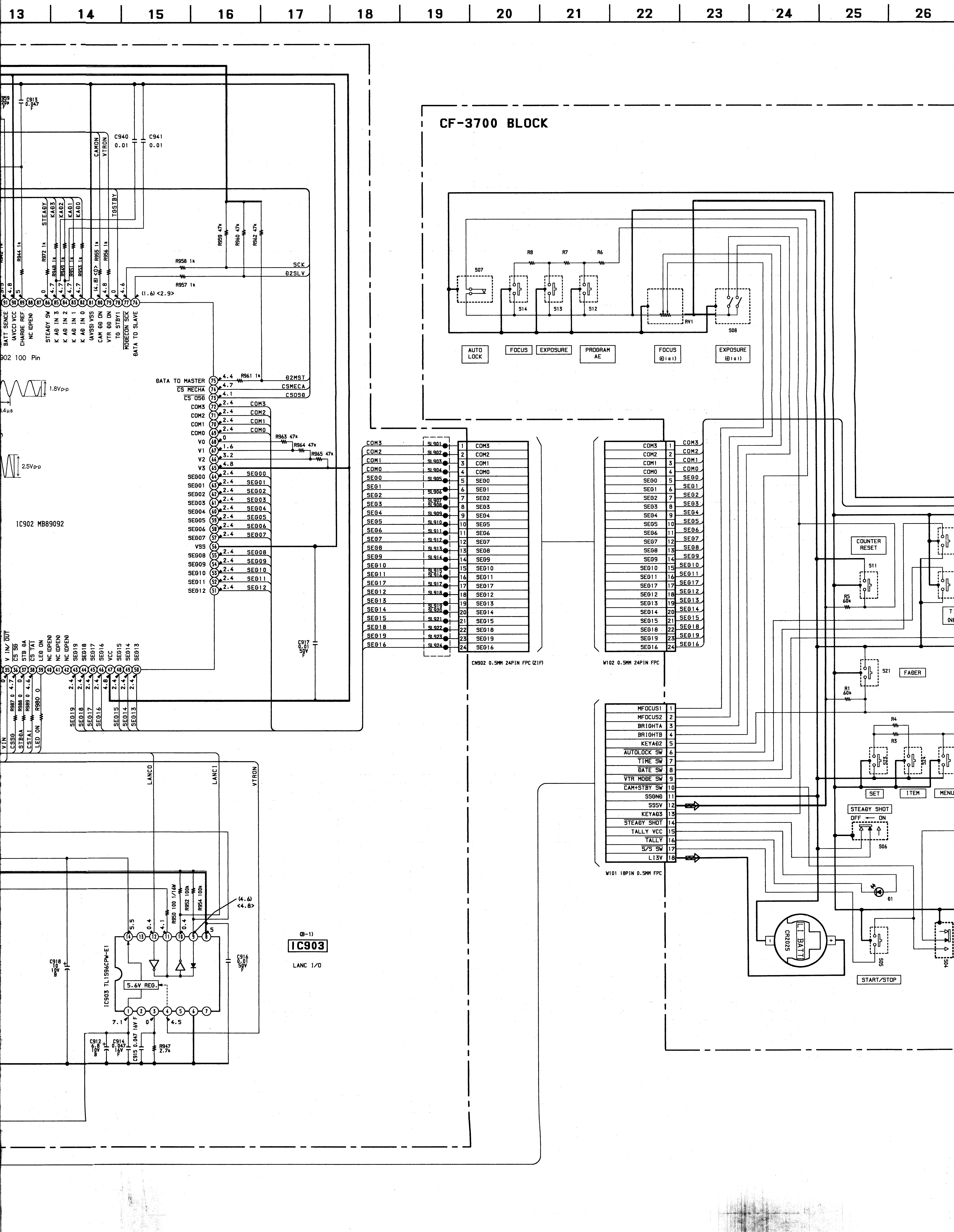
22
23
Page 92)
TO (2/6)
(See Page 103)
TO (5/6) (See Page 102)
(See Page 93) TO (3/6)
(See Page 94)
(See Page 101)
CAP FG
SL202
(B-17)
IC201
SERVO/MECHA SYSTEM CONTROL
IC201 CXP80620A-014R VQFP
(C-23) Q203 SWITCH
(C-23) Q205 SWITCH
(B-23) Q204 SWITCH
Q203 XP4113
Q205 UN9210
Q204 XP4213
(CAM ON)
(A-6)
IC206
LOADING MOTOR DRIVE /5V REG
IC206 LB1843V
(57) REC/PB IC201 40 Pin
4.2V
83ns
X201 11.7MHz
IC205 CXA1575N
START CONTROL
ROTOR POSITION DET.
TIMING CONTROL
SOFT SWITCHING DRIVE OUTPUT
(B-19)
IC205
LPF DRUM MOTOR DRIVE
(B-21)
IC204
CAPSTAN MOTOR DRIVE CAPSTAN FG WAVE SHAPER
IC204 MC6002BR
120° LOGIC
(52) IC205 16 Pin
1.2Vp-p
4.4ms
(50) PB/REC IC205 13 Pin
140mVp-p
(51) REC/PB IC205 15 Pin
30mVp-p
IC203
G WAVE SHAPER
P/END DETECT
EEL FG AMP
MP/DEW DETECT
IC203 LB8110M
TAPE TOP DET.
TAPE END DET
DPG WAVE SHAPER
DFG WAVE SHAPER
(49) REC/PB IC203 18 Pin
55mVp-p
4.5ms
SL204 DRUM FG
SL201 DRUM ICOM
CN206 0.5MM 12PIN FPC (ZIF)
CN207 0.5MM 8PIN FPC (ZIF)
DRUM V
DRUM V
DRUM U
DRUM U
DRUM W
DRUM W
DRUM COM
SENS GND
D FG
FG/PG COM
D PG
SENS GND
C FG (+)
C FG GND
C FG (-)
C FG VCC
<COMMUBUS>
<VIDEOBUS>
<S5SV>
<UNREGGND1>
<LGBUS>
<MOTOR5V>
<AUDIOBUS>
<MDBUS>
<ERRORS>
<DRUMBUS>
<S5GND>
<VTRUNREG>
<MOTORGND>

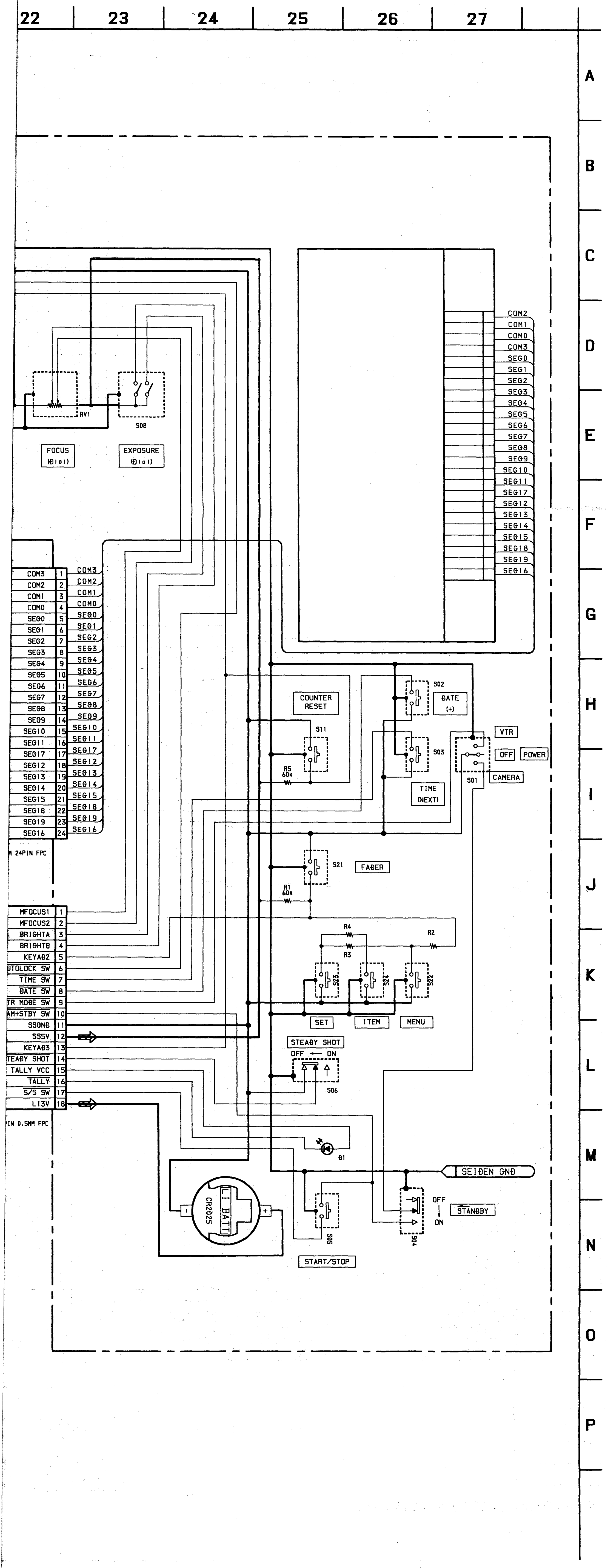

(See Page 94)
TO (5/6)
(See Page 101)
SEL HD
PILOT CONT
(See Page 102)
CAP FG
SL202
(C-7)
IC202
ATF SERVO
PB SP/LP DETECT
CLOG DETECT
IC202
CXA1481AR
PB IC202 37 Pin
1.2Vp-p
60ms
REC IC202 18 Pin
1.2Vp-p
PB IC202 46 Pin
500mVp-p
PB IC202 6 Pin
1.1Vp-p
PB IC202 13 Pin
1.2Vp-p
67ms
PB IC202 7 Pin
0.8V p-p
REC/PB IC204 27 Pin
5.0Vp-p
0.88ms
REC/PB IC204 22,23 Pin
50mVp-p
0.88ms
IC204
MC6002BR
120° LOGIC
IC205
LPF
DRUM MOTOR
DRIVE
IC204
CAPSTAN
MOTOR
DRIVE
CAPSTAN
FG WAVE
SHAPER
IC205 16 Pin
1.2Vp-p
4.4ms
-CC LOCK
VTR UNREG
SS 5V
GND (SS GND)
VTR ON
CAM ON
-VTR SCK
VTR SO
VTR SI
-CS MECHA
SYSTEM SYNC
PB V
-SYS RST
TO (5/6)
(See Page 103)
SS 5V
SS GND
RF SWP
TO (5/6)
(See Page 101)
MD
CAP FG
M902
CAPSTAN
MOTOR
MD
M901
DRUM
MOTOR
FG PG
CN207 0.5MM 18PIN FPC (ZIF)
C FG (+)
C FG GND
C FG (-)
C FG VCC
CAP W
CAP W
C HALL GND
H3 (-)
H3 (+)
H2 (-)
H2 (+)
H1 (-)
H1 (+)
CAP V
CAP V
C HALL VCC
CAP U
CAP U
X201
11.7MHz

SERVO CONTROL

FD-49P (SYSTEM CONTROL), CN-87P (CONNECTOR), FK-3700 BLOCK (CAMERA FUNCTION SWITCH) SCHEMATIC DIAGRAM


– Ref. No. FD-49P BOARD : 4,000 Series, CN-87P BOARD : 5,000 Series –
FD-49P BOARD
no mark : REC/PB mode
( ) : REC mode
〈 〉 : PB mode
CN901 18PIN 0.5MM FPC (ZIF)
LI3V
S/S SW
TALLY
TALLY VCC
STEADY SW
KEYA03
SSSV
SSGND
CAM+STBY SW
VTR MODE SW
DATE SW
TIME SW
AUTOLOCK SW
KEYA02
BRIGHTB
BRIGHTA
MFOCUS2
MFOCUS1
D910 02DZ8.2-TPH3
D911 02DZ8.2-TPH3
W901 46PIN TO VC
VTR ON
CAM ON
VTR UNREG
SSSV
SSGND
15V
LANC DC
LANC SIG
LI3V
LED ON
V IN/ OUT
EJECT SW
KEYA01
KEYA00
RF SWP
VSC SCK
DATA TO MDD
DATA TO VSC
CS VSC
MFOCUS2
MFOCUS1
TG STBY1
CS TAI
CS SG
MDDECON SCK
DATA TO SLAVE
DATA TO MASTER
SYSTEM RESET
CS MECHA
SYSTEM SYNC
PBV
CCLOCK
CS SR
CS EEPROM
CS DSD
STRB DA
BACKUP V
TALLY
WIND
SIRCS1
CHARGE REF
CHARGE
BATT/ EXT
ACV6.5/ 8.4
EVER 5V
CN-87P BOARD
(FP-21 FLEXIBLE)
TO VC-137P BOARD CN306
(See Page 103)
IC902
MODE CONTROL
LCD DRIVE
X901 32KHz
XTL901 10MHZ
MDD0
MDD1
XO
XI
VSS
RESET
DATE SW
TIME SW
EJECT SW
VTR MODE SW
AUTO LOCK SW
START/STOP SW
CCDOWN SW
CAM+STBY SW
BATT IN
PBV
SYSTEM SYNC
LANC POWER ON
LI PRE END
EEPROM WE
RF SWP
WIND ON
TALLY LED
SYSTEM RESET
CHARGE
② REC/PB IC902 100
30.4μs
① REC/PB IC902 3 Pin
102ns
IC901
RESET
BATT CHECK
IC901 S-8420AF
(B-2) Q901
VOLTAGE DETECT
Q901 XN4601
(B-2) D901 MA740
(B-4) D902 MA728-TX
‹KEY_BUS›
‹SIO_BUS›
‹MDD_BUS›
‹EVER5V›
‹BACKUP›
‹LI3V›
‹SSGND›
‹UNREG›
16


13
14
15
16
17
18
19
20
21
22
23
24
25
26
CF-3700 BLOCK
AUTO LOCK
FOCUS
EXPOSURE
PROGRAM AE
FOCUS (DIAL)
EXPOSURE (DIAL)
S07
S14
S13
S12
RV1
S08
R8
R7
R6
IC902 MB89092
902 100 Pin
1.8Vp-p
2.5Vp-p
DATA TO MASTER
CS MECHA
CS OSD
COM3
COM2
COM1
COM0
V0
V1
V2
V3
SEG00
SEG01
SEG02
SEG03
SEG04
SEG05
SEG06
SEG07
VSS
SEG08
SEG09
SEG10
SEG11
SEG12
BATT SENCE
(AVCC) VCC
CHARGE REF.
NC (OPEN)
STEADY SW
K AD IN 3
K AD IN 2
K AD IN 1
K AD IN 0
(AVSS) VSS
CAM DD ON
VTR DD ON
TG STBY1
MODECON SCK
DATA TO SLAVE
CAMON
VTRON
TGSTBY
STEADY
KAD3
KAD2
KAD1
KAD0
SCK
D2SLV
D2MST
CSMECA
CSOSD
C940 0.01
C941 0.01
C913 0.047
R958 1k
R957 1k
R959 47k
R960 47k
R962 47k
R961 1k
R963 47k
R964 47k
R965 47k
C917 0.01 50V
CN902 0.5MM 24PIN FPC (ZIF)
W102 0.5MM 24PIN FPC
W101 18PIN 0.5MM FPC
MFOCUS1
MFOCUS2
BRIGHTA
BRIGHTB
KEYAD2
AUTOLOCK SW
TIME SW
DATE SW
VTR MODE SW
CAM+STBY SW
SSGND
SS5V
KEYAD3
STEADY SHOT
TALLY VCC
TALLY
S/S SW
LI3V
COUNTER RESET
S11
R5 60k
S21
FADER
R1 60k
R4
R3
SET
ITEM
MENU
STEADY SHOT OFF ← ON
S06
D1
CR2025
LI BATT
S05
START/STOP
S04
VIN
CSSG
STBDA
CSTAI
LED ON
V IN/OUT
CS SG
STB DA
CS TAI
LED ON
NC (OPEN)
VCC
LANCO
LANCI
VTRON
(B-1) IC903
LANC I/O
IC903 TL1596CPW-E1
5.6V REG.
C918 10 10V
C912 6.8 10V
C914 0.047 16V
C915 0.047 16V
R947 2.7k
R950 100 1/16W
R952 100k
R954 100k
C916 0.01 50V
(4.6) <4.8>


22
23
24
25
26
27
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
RV1
S08
FOCUS
(Dial)
EXPOSURE
(Dial)
COM2
COM1
COM0
COM3
SEG0
SEG1
SEG2
SEG3
SEG4
SEG5
SEG6
SEG7
SEG8
SEG9
SEG10
SEG11
SEG17
SEG12
SEG13
SEG14
SEG15
SEG18
SEG19
SEG16
COM3 1 COM3
COM2 2 COM2
COM1 3 COM1
COM0 4 COM0
SEG0 5 SEG0
SEG1 6 SEG1
SEG2 7 SEG2
SEG3 8 SEG3
SEG4 9 SEG4
SEG5 10 SEG5
SEG6 11 SEG6
SEG7 12 SEG7
SEG8 13 SEG8
SEG9 14 SEG9
SEG10 15 SEG10
SEG11 16 SEG11
SEG17 17 SEG17
SEG12 18 SEG12
SEG13 19 SEG13
SEG14 20 SEG14
SEG15 21 SEG15
SEG18 22 SEG18
SEG19 23 SEG19
SEG16 24 SEG16
M 24PIN FPC
MFOCUS1 1
MFOCUS2 2
BRIGHTA 3
BRIGHTB 4
KEYAD2 5
UTOLOCK SW 6
TIME SW 7
DATE SW 8
TR MODE SW 9
AM+STBY SW 10
SSGND 11
SS5V 12
KEYAD3 13
TEADY SHOT 14
TALLY VCC 15
TALLY 16
S/S SW 17
LI3V 18
PIN 0.5MM FPC
COUNTER RESET
S11
R5 60k
S02
DATE (+)
S03
TIME (NEXT)
VTR
OFF
POWER
CAMERA
S01
S21
FADER
R1 60k
R4
R3
R2
S23
S24
S22
SET
ITEM
MENU
STEADY SHOT
OFF ← ON
S06
D1
SEIDEN GND
LI BATT
CR2025
-
+
S05
START/STOP
S04
OFF
ON
STANDBY

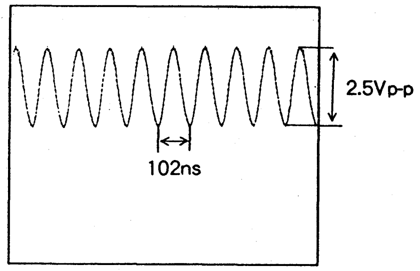
FD-49P (SYSTEM CONTROL), CN-87P (CONNECTOR) PRINTED WIRING BOARD

– Ref. No. FD-49P BOARD : 4,000 Series, CN-87P BOARD : 5,000 Series –

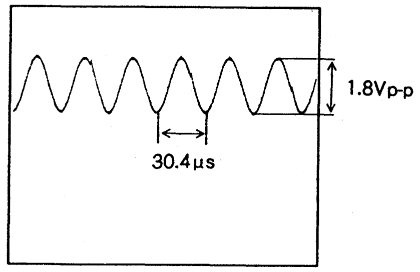
- **For printed wiring boards**
- FD-49P board is a six-layer print board. However, the patterns of layers 2 to 5 have not been included in the diagram.
- CF-3700 BLOCK (TERMINAL BOARD) is replaced as blocks, so that there PRINTED WIRING BOARDS are omitted.

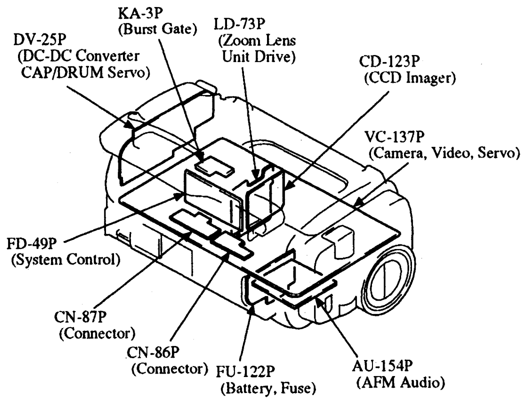
FD-49P BOARD

① REC/PB IC902 3 Pin

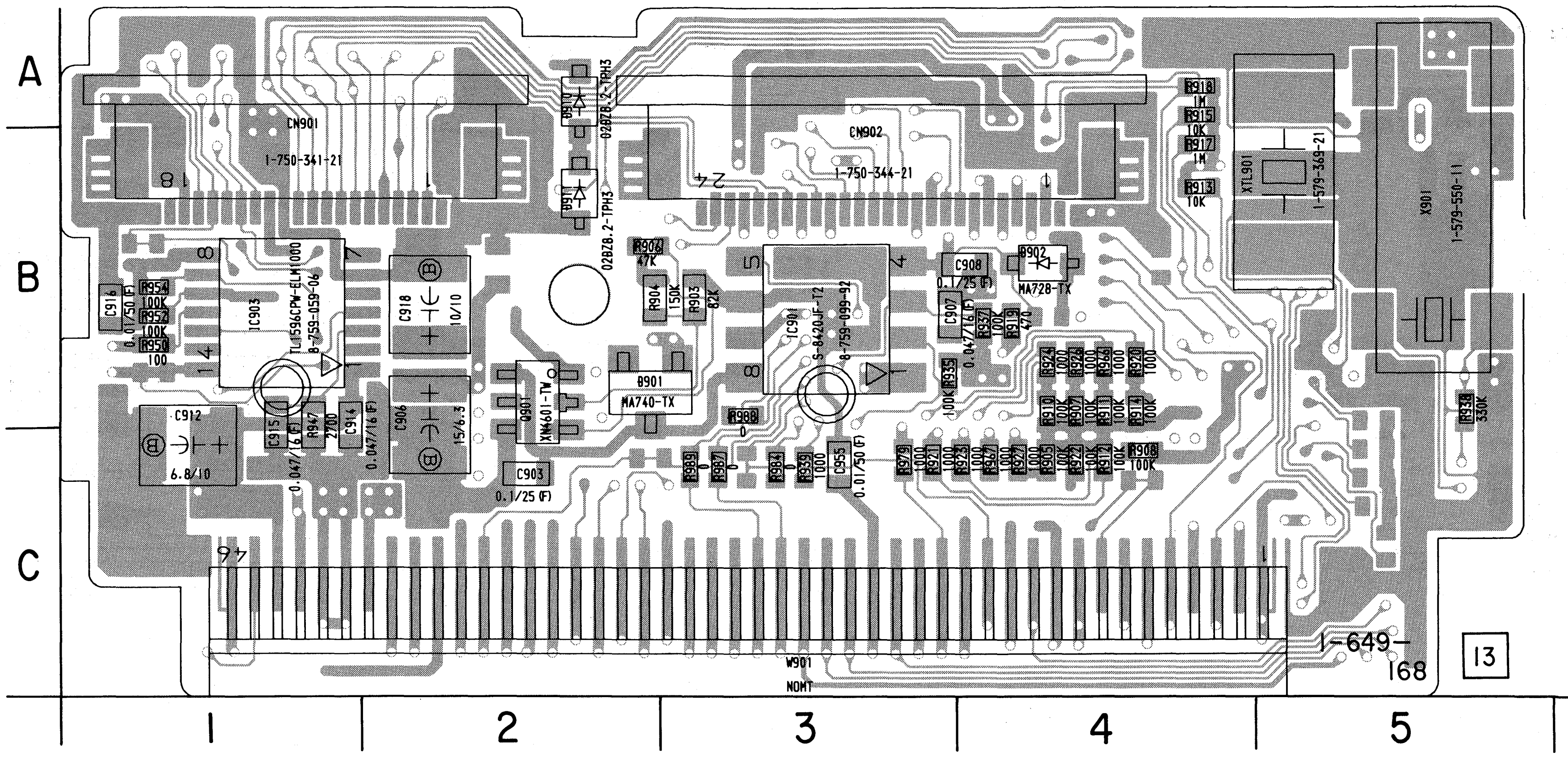


② REC/PB IC902 100 Pin

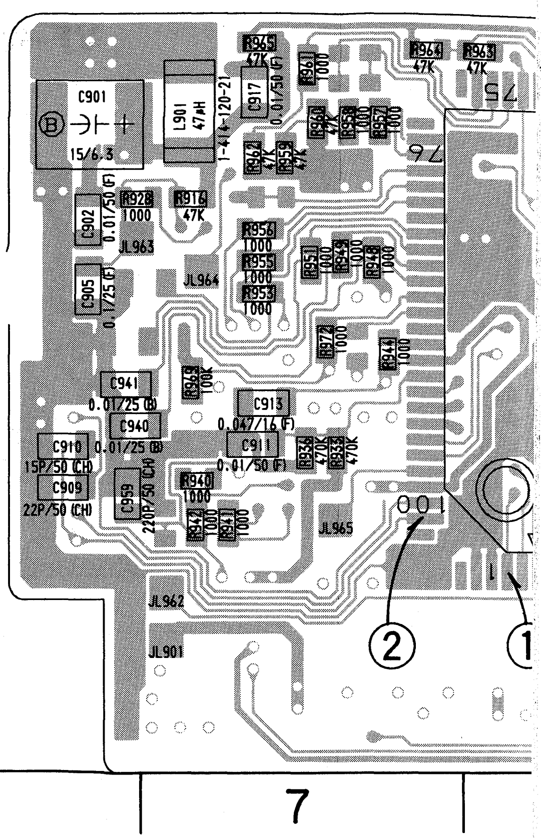



KA-3P
(Burst Gate)
DV-25P
(DC-DC Converter
CAP/DRUM Servo)
LD-73P
(Zoom Lens
Unit Drive)
CD-123P
(CCD Imager)
VC-137P
(Camera, Video, Servo)
FD-49P
(System Control)
CN-87P
(Connector)
CN-86P
(Connector)
FU-122P
(Battery, Fuse)
AU-154P
(AFM Audio)

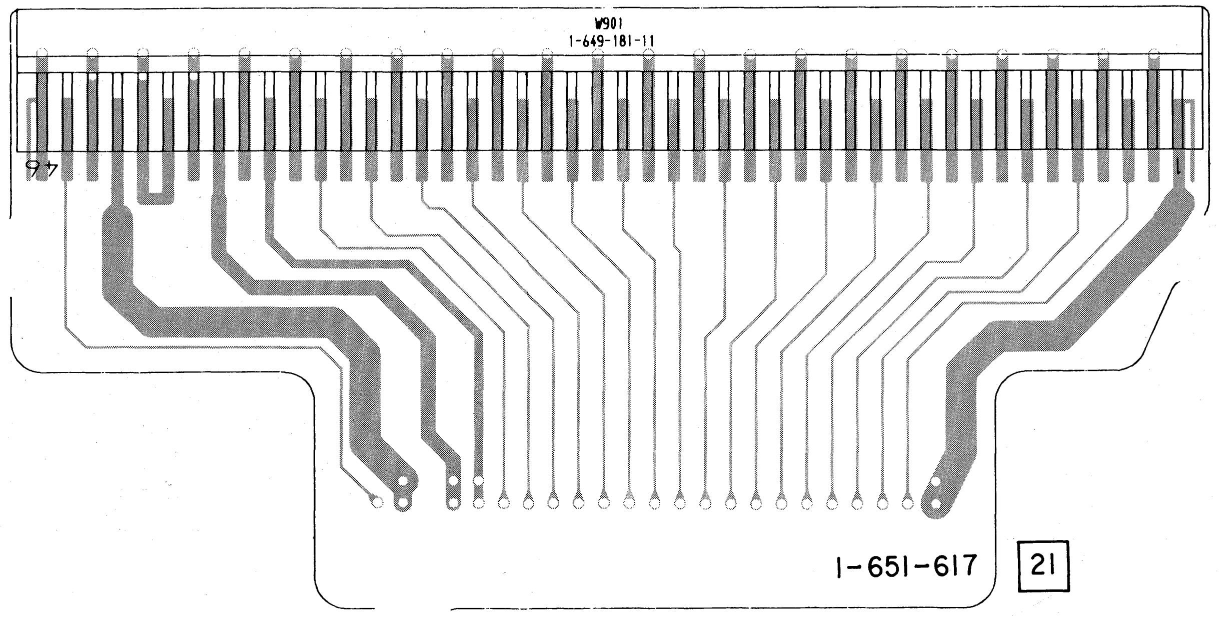
FD-49P BOARD – A SIDE –


A
B
C
1
2
3
4
5
6
CN901
1-750-341-21
CN902
1-750-344-21
IC903
TL0596CPW-ELM1000
8-759-059-06
IC901
S-8420JF-T2
8-759-099-92
Q901
XN4601-TW
D901
MA740-TX
D902
MA728-TX
D910
02BZ8.2-TPH3
D911
02BZ8.2-TPH3
XTL901
1-579-369-21
X901
1-579-550-11
C912
6.8/10
C918
10/10
C906
15/6.3
C903
0.1/25 (F)
W901
NOMT
94
1
1-649-
168
13

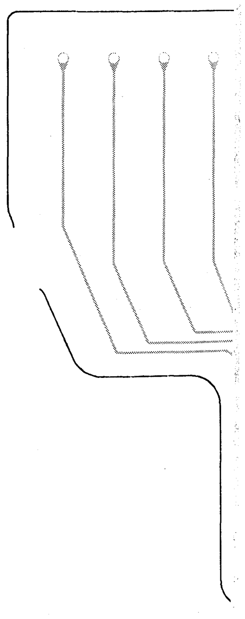
FD-49P BOARD – B SIDE –


7
C901
15/6.3
L901
47μH
1-414-120-21
C902
C905
C941
C940
C910
C909
C913
C911
JL963
JL964
JL962
JL965
JL901
②
①

CN-87P BOARD – A SIDE –

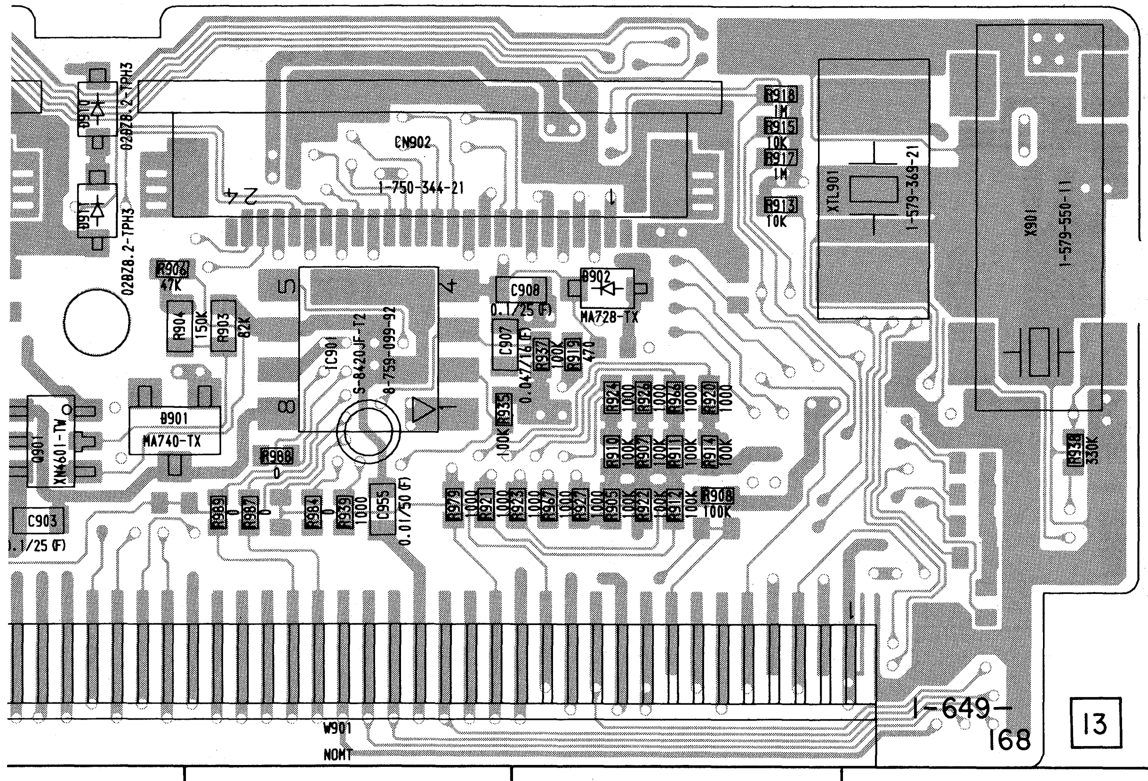

W901
1-649-181-11
94
1
1-651-617
21

CN-87P BC

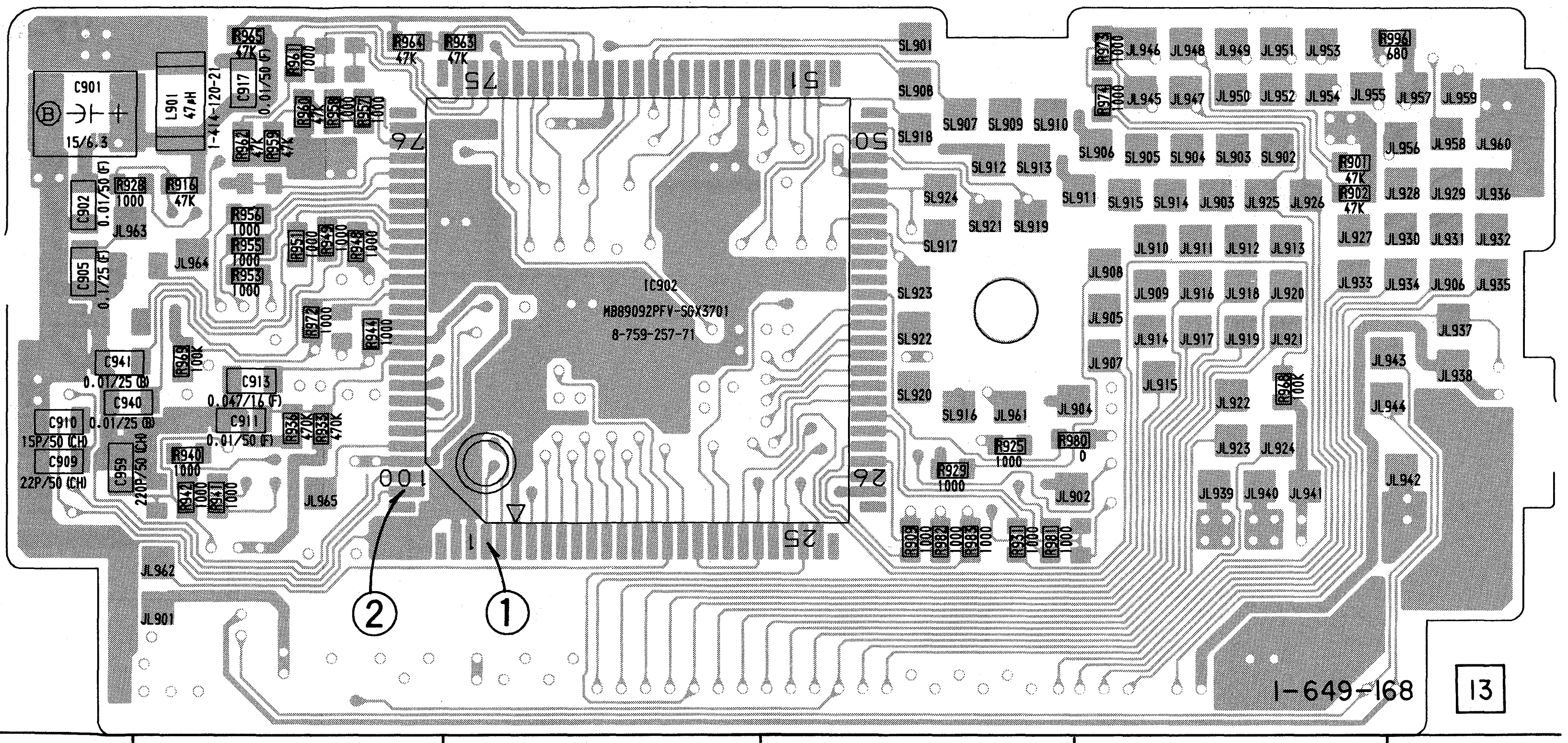


16

E –

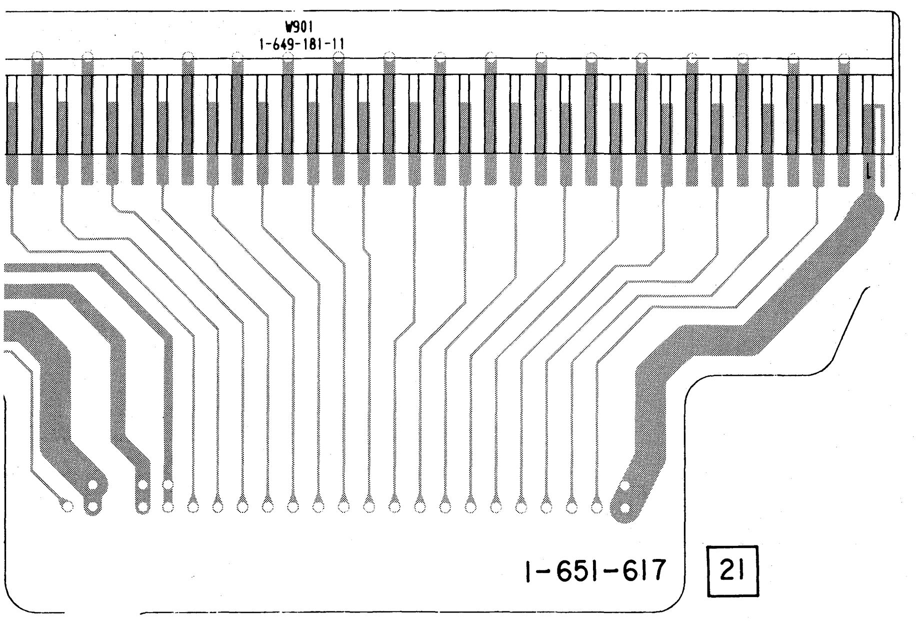

CN902
1-750-344-21
24
1
XTL901
1-579-369-21
X901
1-579-550-11
IC901
S-8420JF-T2
8-759-099-92
B901
MA740-TX
B902
MA728-TX
W901
NOMT
1-649-
168
13

FD-49P BOARD – B SIDE –

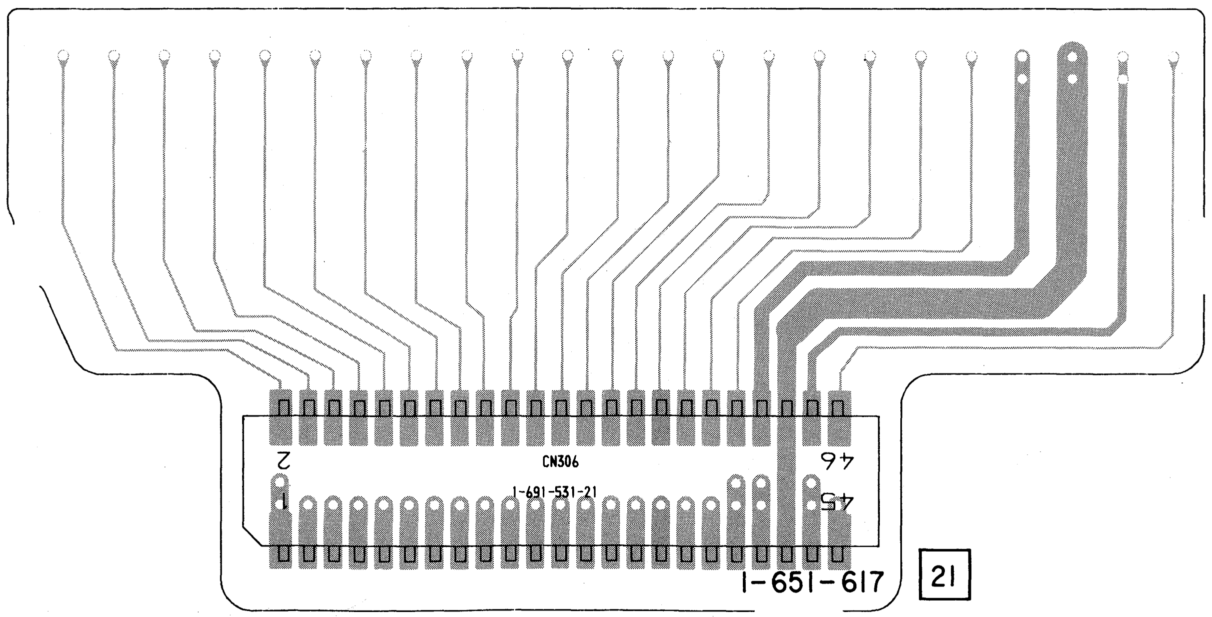

C901
15/6.3
L901
47μH
IC902
MB89092PFV-G-X3701
8-759-257-71
76
75
51
50
26
25
1
100
②
①
1-649-168
13

2 3 4 5 6 7 8 9 10 11

D – A SIDE –

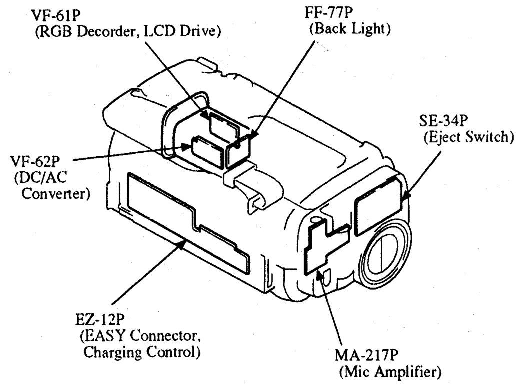

W901
1-649-181-11
1-651-617
21

CN-87P BOARD – B SIDE –

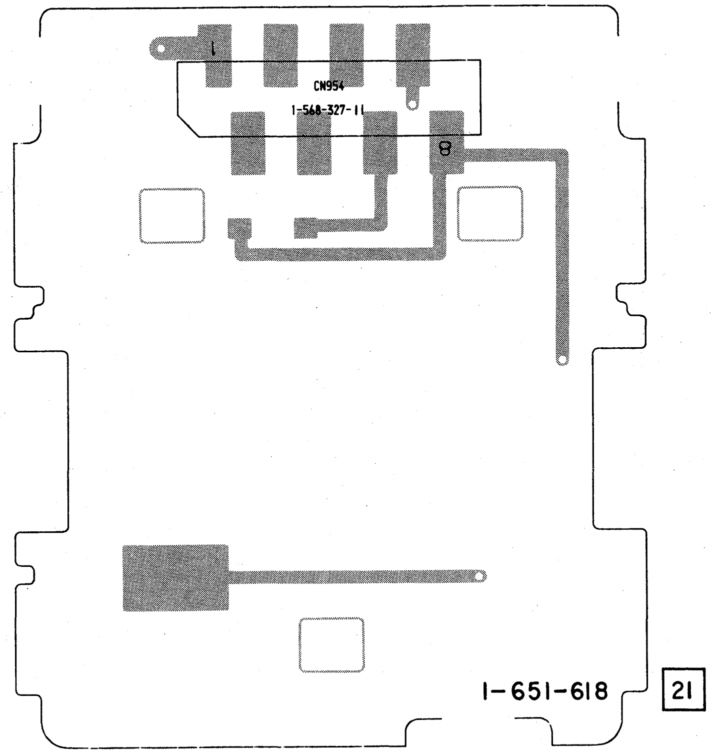

CN306
1-691-531-21
2
46
1
45
1-651-617
21

VF-62P (DC/AC CONVERTER), VF-61P (RGB DECORDER, LCD DRIVE), FF-77P (BACK LIGHT) PRINTED WIRING BOARD

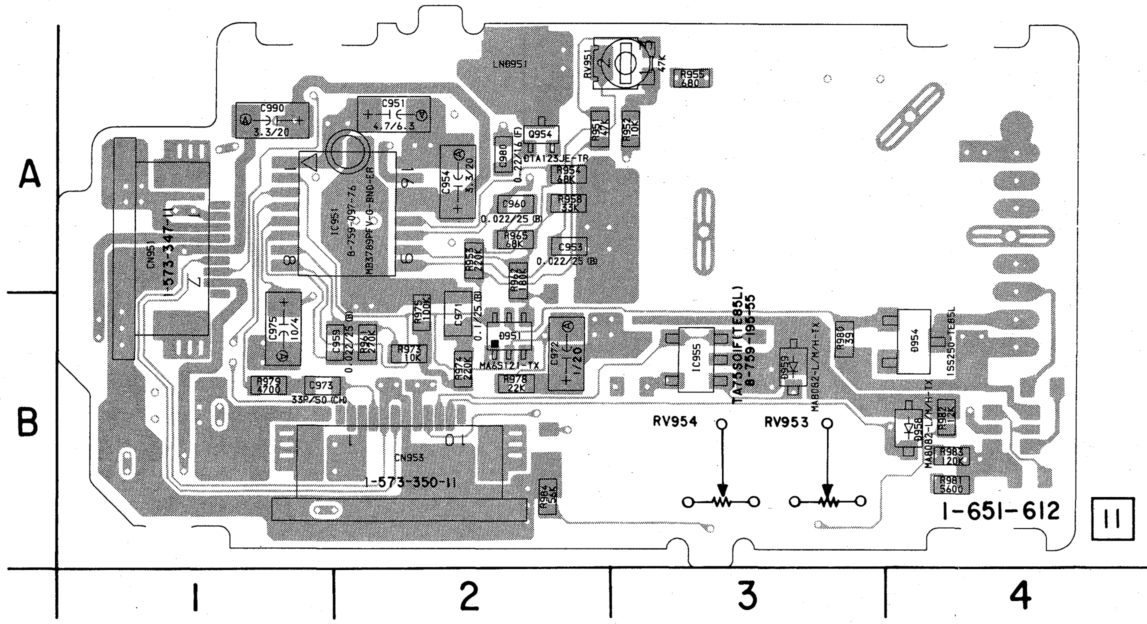
– Ref. No. VF-62P BOARD : 6,000 Series, VF-61P BOARD : 7,000 Series, FF-77P BOARD : 8,000 Series –


VF-61P
(RGB Decorder, LCD Drive)
FF-77P
(Back Light)
SE-34P
(Eject Switch)
VF-62P
(DC/AC
Converter)
EZ-12P
(EASY Connector,
Charging Control)
MA-217P
(Mic Amplifier)

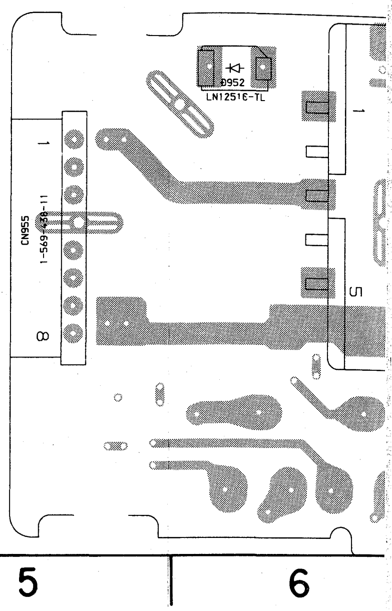
FF-77P BOARD – A SIDE –


CN954
1-568-327-11
1-651-618
21

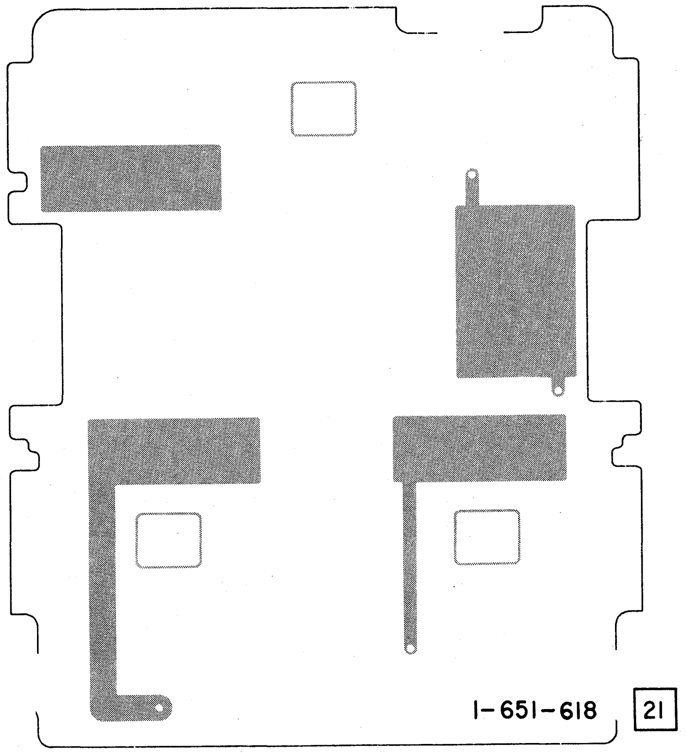
VF-62P BOARD – A SIDE –


A
B
1
2
3
4
LN6951
RV951
47K
CN951
1-573-347-11
C990
C951
Q954
DTA123JE-TR
IC951
IC955
TA7650IF(TE85L)
8-759-196-55
MA6S121-TX
D951
D954
1SS250-TE85L
RV954
RV953
CN953
1-573-350-11
1-651-612
11

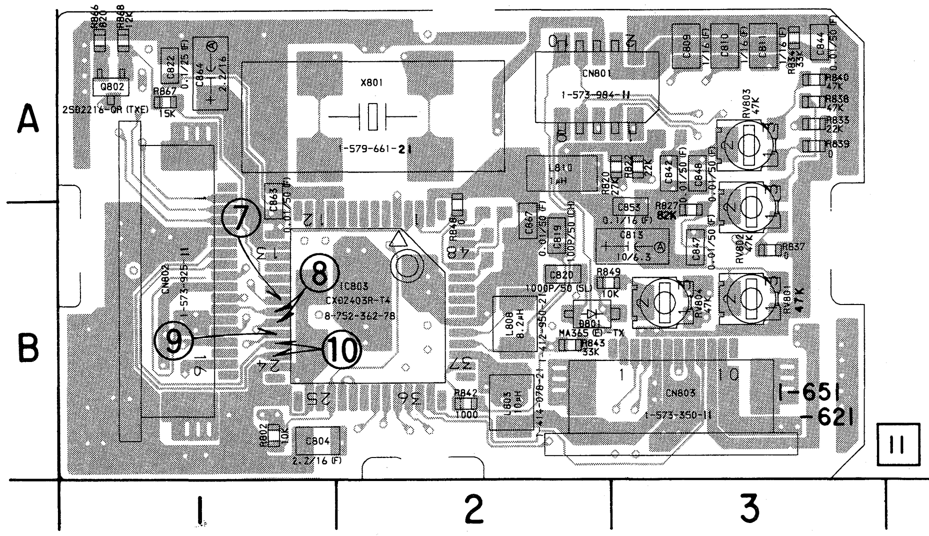
VF-62P BOARD – B SI


D952
LN1251E-TL
CN955
1-569-336-11
1
8
5
6

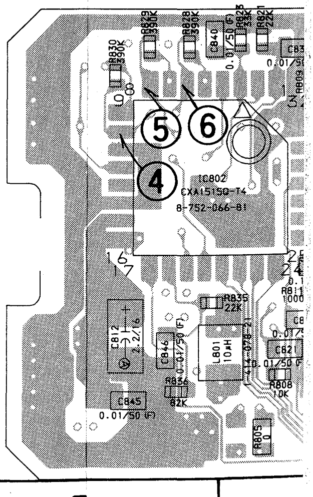
FF-77P BOARD – B SIDE –



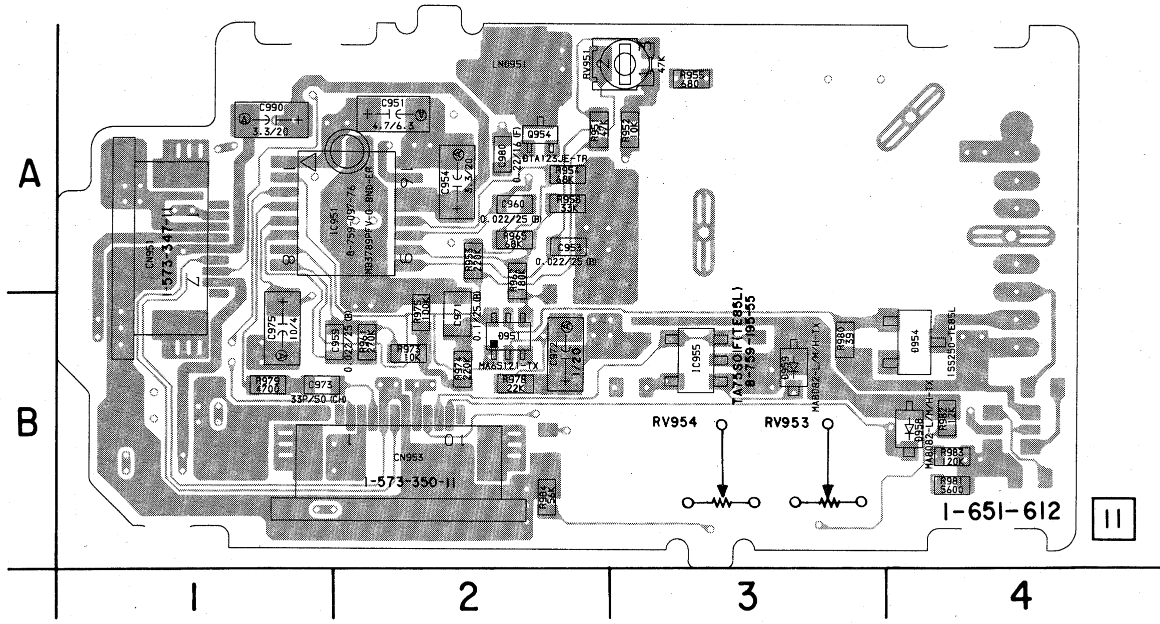
VF-61P BOARD – A SIDE –


A
B
1
2
3
4
5
Q802
2SD2216-QR(TXE)
X801
1-579-661-21
CN801
1-573-984-11
RV803
47K
CN802
1-573-928-11
IC803
CXD2403R-T4
8-752-362-78
7
8
9
10
CN803
1-573-350-11
C804
2.2/16
1-651
-621
11

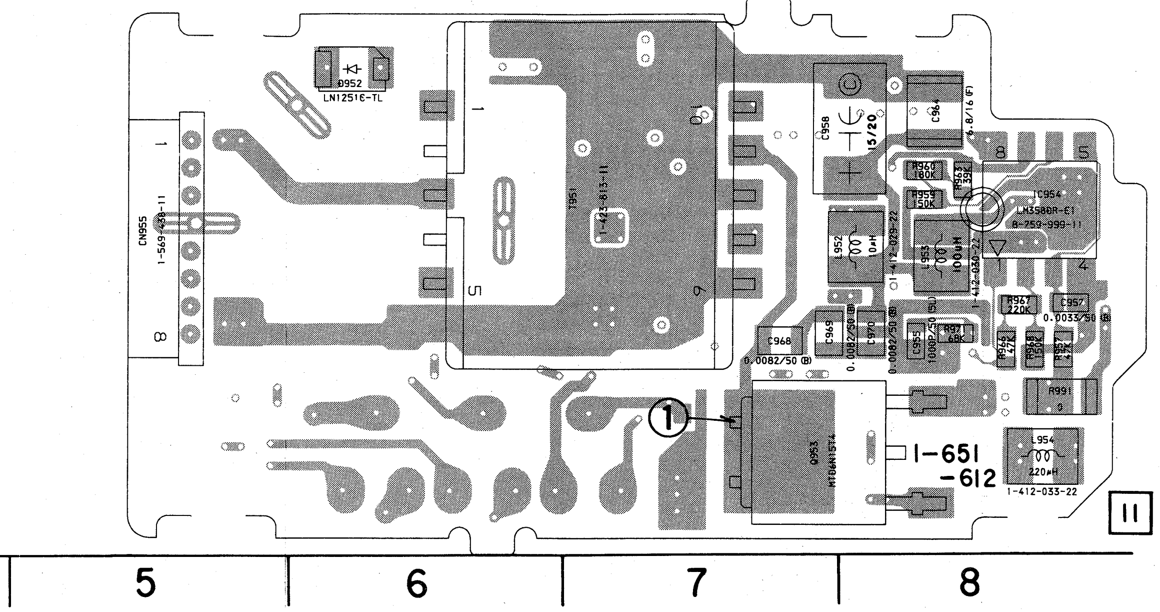
VF-61P BOARD


IC802
CXA1515Q-T4
8-752-066-81
4
5
6

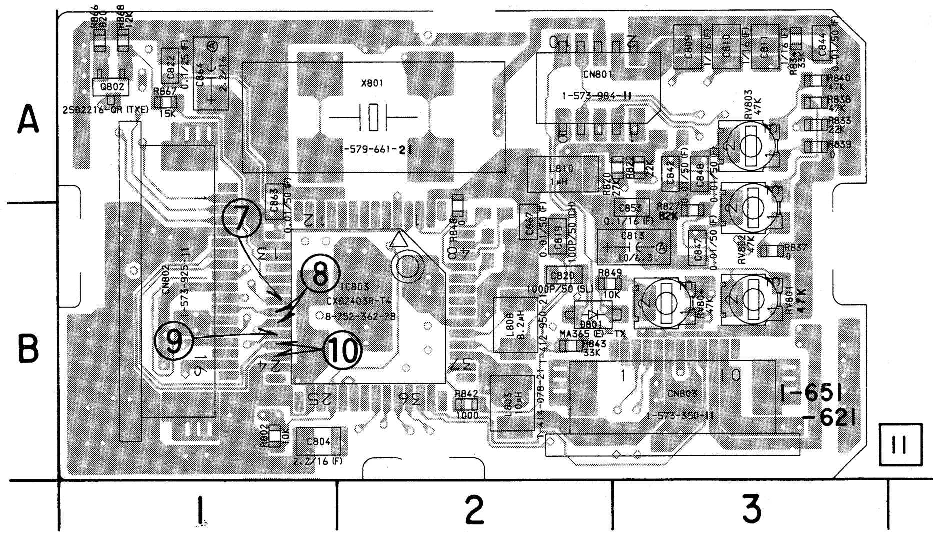
VF-62P BOARD – A SIDE –


A
B
1
2
3
4
IC951
MB3759PF-G-BND-ER
8-759-097-76
IC955
TA75S01F(TE85L)
8-759-195-55
Q954
DTA123JE-TR
Q951
MA8121-TX
MA8082-L/M/H-TX
RV951
RV954
RV953
CN951
1-573-347-11
CN953
1-573-350-11
LN0951
C951
47/6.3
C990
3.3/20
C960
0.022/25
C953
0.022/25
C973
33P/50
1-651-612
11

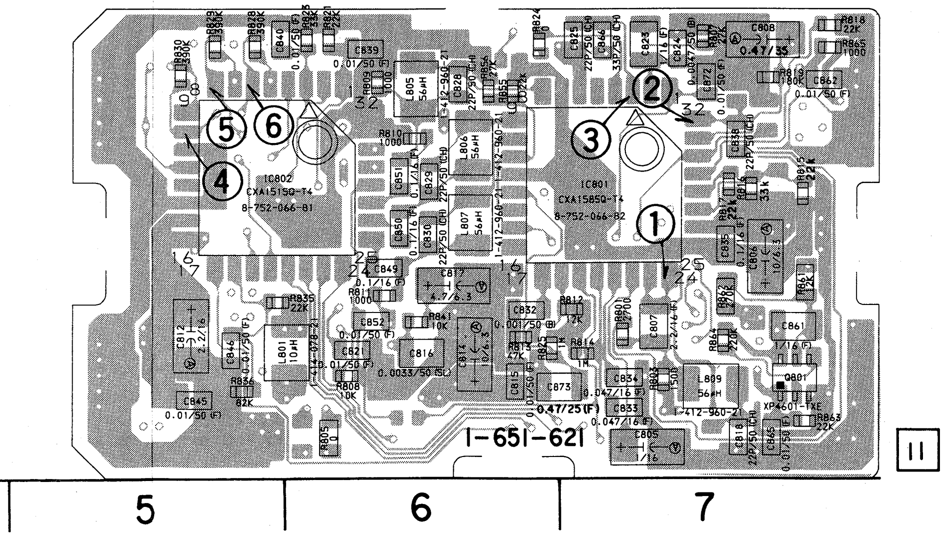
VF-62P BOARD – B SIDE –


5
6
7
8
CN955
1-569-458-11
D952
LN1251E-TL
T951
1-425-813-11
IC954
LM358OR-E1
8-759-990-11
L952
10μH
L953
100μH
L954
220μH
1-412-033-22
Q953
MTD4N15T4
C958
15/20
C968
0.0082/50
C957
0.0033/50
R991
①
1-651
-612
11

VF-61P BOARD – A SIDE –


A
B
1
2
3
X801
1-579-661-21
CN801
1-573-984-11
CN802
IC803
CXD2403R-T4
8-752-362-78
CN803
1-573-350-11
Q802
2SB2216-QR(TXE)
RV803
47K
RV802
47K
RV801
47K
L810
L808
L805
C804
2.2/16
⑦
⑧
⑨
⑩
1-651
-621
11

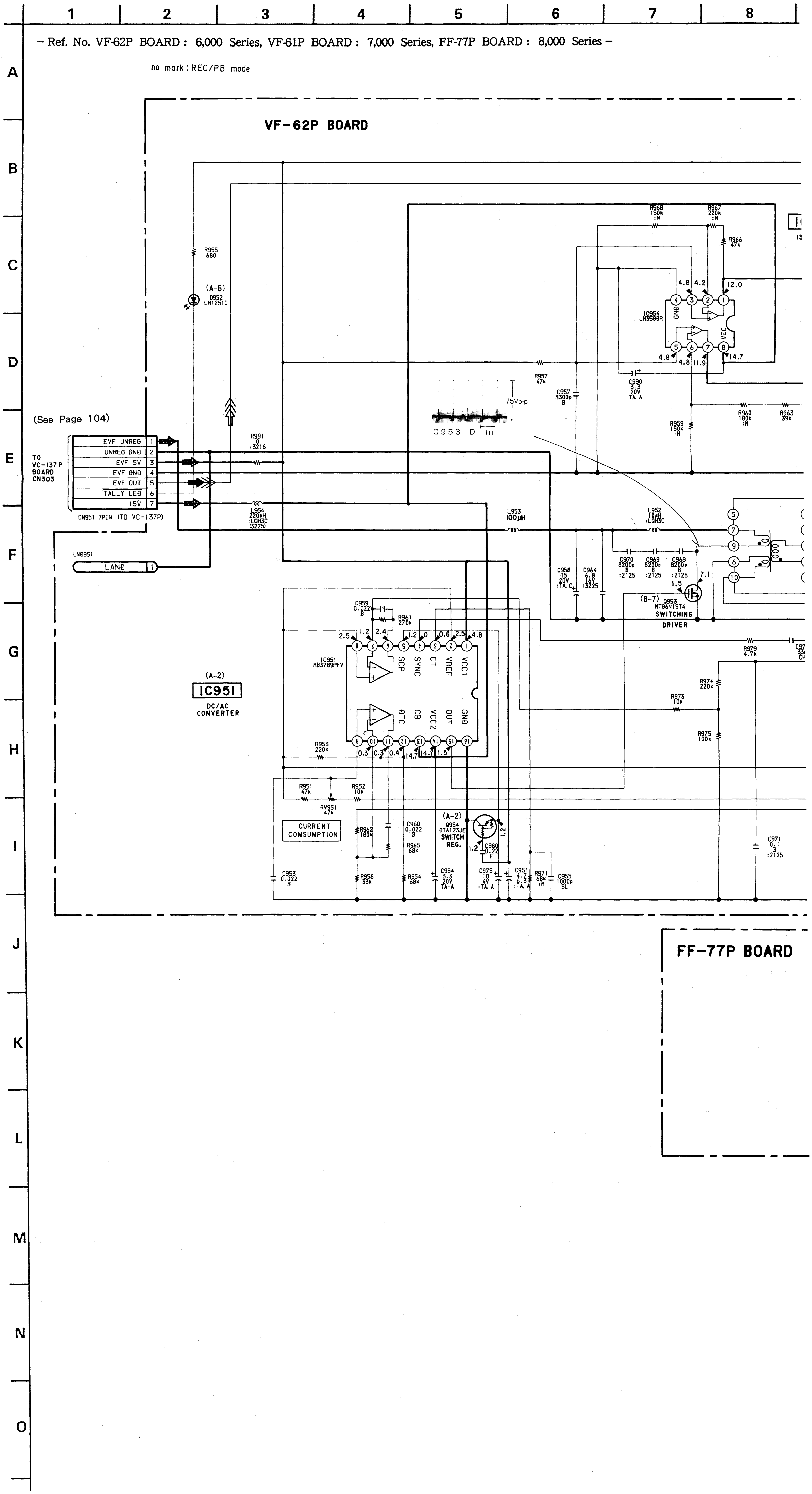
VF-61P BOARD – B SIDE –


5
6
7
IC802
CXA1515Q-T4
8-752-066-81
IC801
CXA1585Q-T4
8-752-066-82
Q801
XP4601-TXE
L801
10μH
L807
56μH
L809
56μH
C808
0.47/35
C845
0.01/50
①
②
③
④
⑤
⑥
1-651-621
11

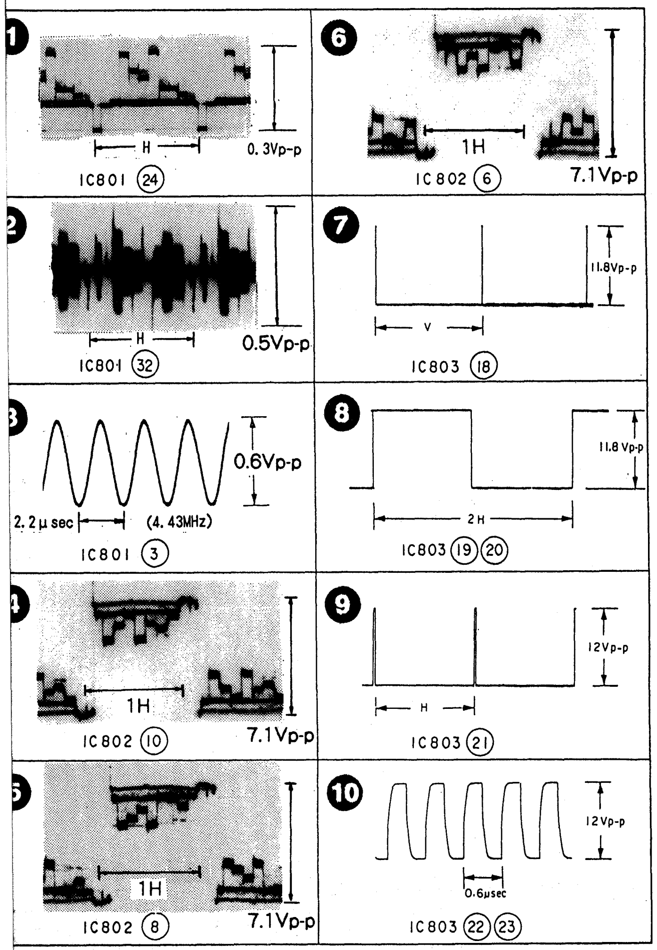
VF-62P (DC/AC CONVERTER), VF-61P (RGB DECORDER, LCD DRIVE), FF-77P (BACK LIGHT) SCHEMATIC DIAGRAM

– Ref. No. VF-62P BOARD : 6,000 Series, VF-61P BOARD : 7,000 Series, FF-77P BOARD : 8,000 Series –

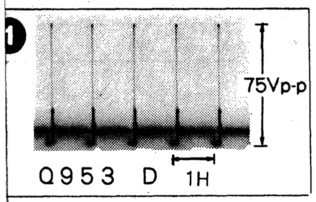
no mark : REC/PB mode

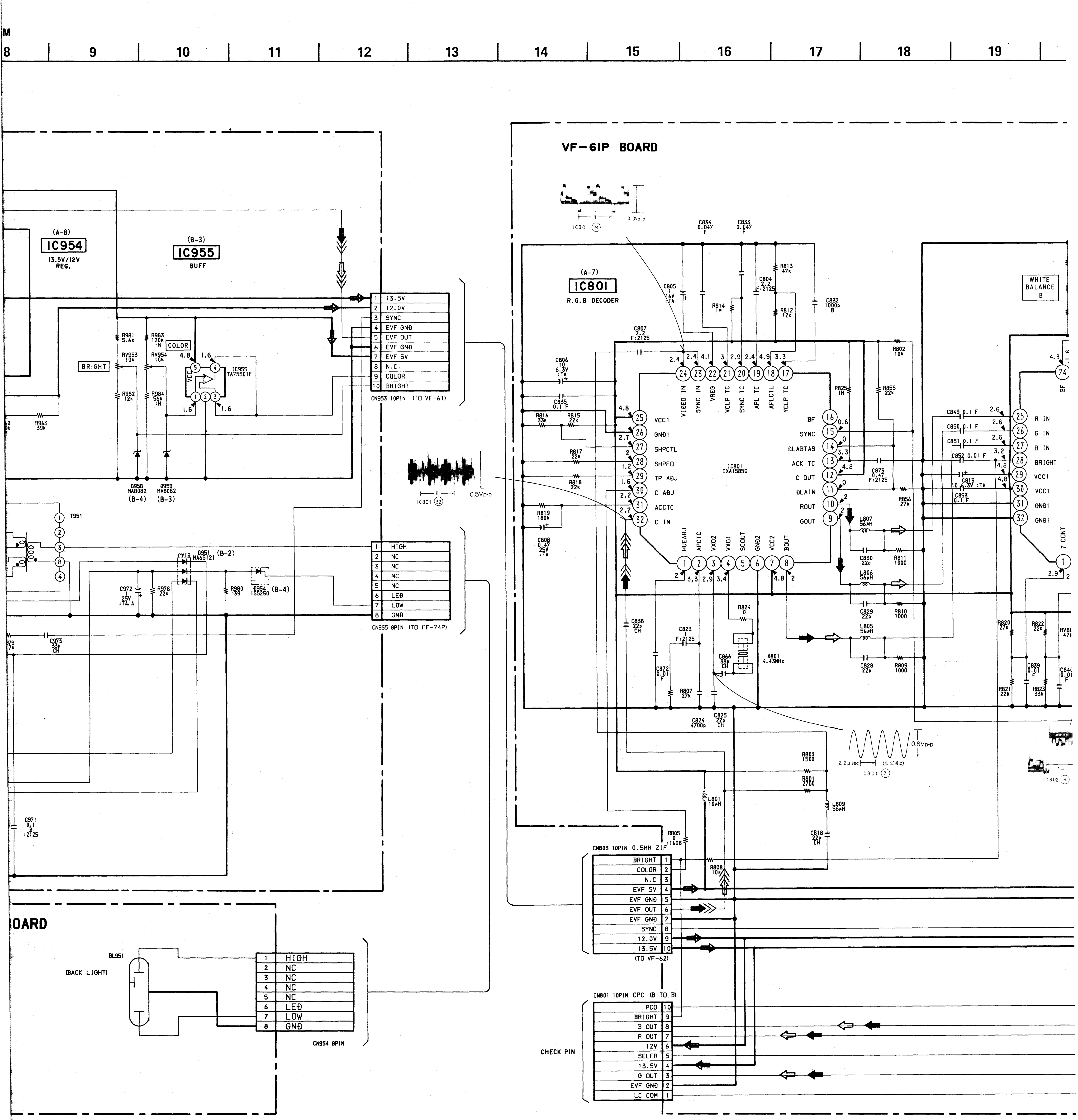

1
2
3
4
5
6
7
8
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
VF-62P BOARD
FF-77P BOARD
(See Page 104)
TO VC-137P BOARD CN303
EVF UNREG 1
UNREG GND 2
EVF 5V 3
EVF GND 4
EVF OUT 5
TALLY LED 6
15V 7
CN951 7PIN (TO VC-137P)
LN8951
LAND 1
R955 680
(A-6) D952 LN1251C
R991 0 :3216
L954 220μH :LQH3C (3225)
L953 100μH
L952 10μH :LQH3C
75Vp-p
Q953 D 1H
R957 47k
C957 3300p B
C990 3.3 20V TA A
R968 150k :M
R967 220k :M
R966 47k
IC954 LM358BR
GND
VCC
4.8
4.2
12.0
14.7
11.9
R959 150k :M
R960 180k :M
R963 39k
C958 15 20V :TA C
C964 6.8 16V :3225
C970 8200p B :2125
C969 8200p B :2125
C968 8200p B :2125
7.1
1.5
(B-7) Q953 MTO6N15T4 SWITCHING DRIVER
C959 0.022 B
R961 270k
IC951 MB3789PFV
(A-2)
IC951
DC/AC CONVERTER
SCP
SYNC
CT
VREF
VCC1
DTC
CB
VCC2
OUT
GND
2.5
1.2
2.4
0.6
4.8
0.3
0.4
14.7
1.5
R953 220k
R951 47k
R952 10k
RV951 47k
CURRENT COMSUMPTION
R962 180k
C960 0.022 B
R965 68k
(A-2) Q954 DTA123JE SWITCH REG.
C980 0.22 F
C953 0.022 B
R958 33k
R954 68k
C954 3.3 20V TA:A
C975 10 4V :TA A
C951 4.7 6.3 :TA A
R971 68k :M
C955 1000p SL
R979 4.7k
R974 220k
R973 10k
R975 100k
C971 0.1 B :2125

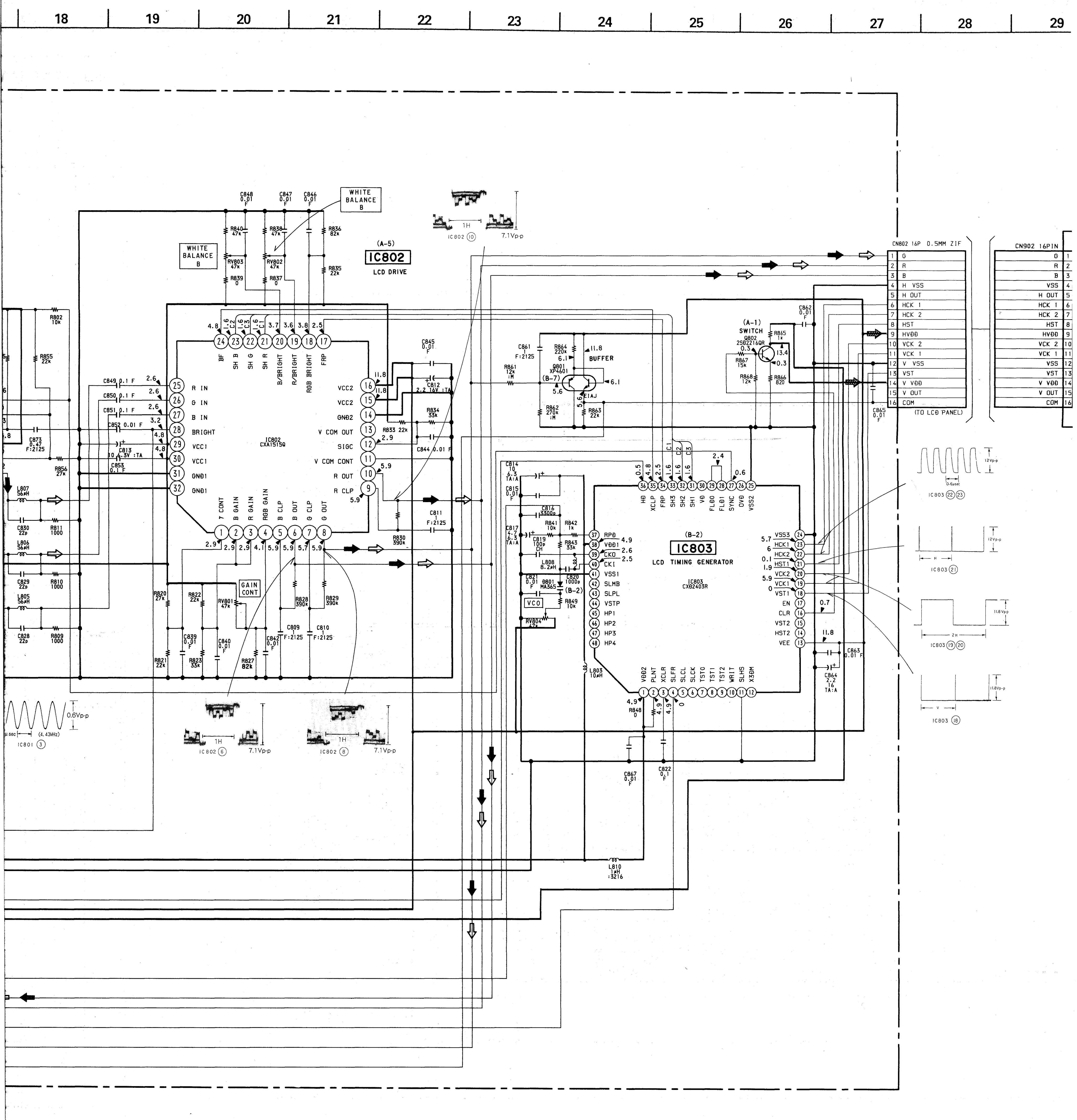
-61P BOARD



-62P BOARD

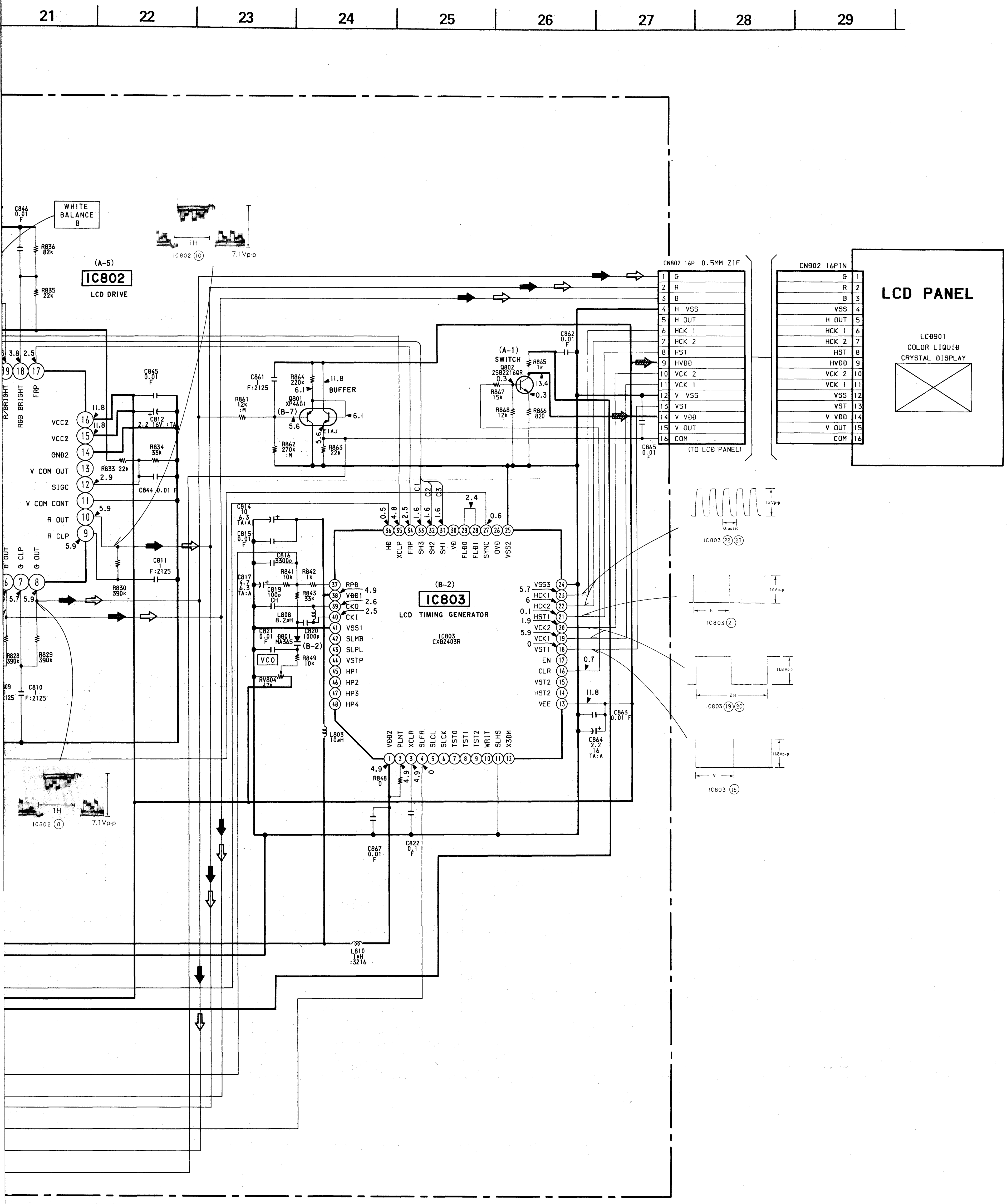



M
8
9
10
11
12
13
14
15
16
17
18
19
(A-8)
IC954
13.5V/12V REG.
(B-3)
IC955
BUFF
R981 5.6k
R983 120k :M
COLOR
RV953 10k
RV954 10k
BRIGHT
IC955 TA75S01F
R982 12k
R984 56k :M
R963 39k
D958 MA8082 (B-4)
D959 MA8082 (B-3)
T951
D951 MA6S121 (B-2)
C972 1 25V :TA A
R978 22k
R980 39
D954 1SS250 (B-4)
C973 33p CH
C971 0.1 B :2125
CN953 10PIN (TO VF-61)
1 13.5V
2 12.0V
3 SYNC
4 EVF GND
5 EVF OUT
6 EVF GND
7 EVF 5V
8 N.C.
9 COLOR
10 BRIGHT
CN955 8PIN (TO FF-74P)
1 HIGH
2 NC
3 NC
4 NC
5 NC
6 LED
7 LOW
8 GND
BOARD
BL951
(BACK LIGHT)
CN954 8PIN
1 HIGH
2 NC
3 NC
4 NC
5 NC
6 LED
7 LOW
8 GND
0.5Vp-p
IC801 32
VF-61P BOARD
0.3Vp-p
IC801 24
(A-7)
IC801
R.G.B DECODER
IC801 CXA1585Q
C834 0.047 F
C833 0.047 F
C805 16V :TA
R813 47k
C804 2.2 F:2125
C832 1000p B
R814 1M
R812 12k
C807 2.2 F:2125
R802 10k
C806 10 6.3V :TA
C835 0.1 F
R816 33k
R815 22k
R817 22k
R818 22k
R819 180k
C808 0.47 25V :TA
R825 1M
R855 22k
VIDEO IN
SYNC IN
VREG
VCLP TC
SYNC TC
APL TC
APLCTL
YCLP TC
VCC1
GND1
SHPCTL
SHPFO
TP ADJ
C ADJ
ACCTC
C IN
BF
SYNC
DLABTAS
ACK TC
C OUT
DLAIN
ROUT
GOUT
HUEADJ
APCTC
VXO2
VXO1
SCOUT
GND2
VCC2
BOUT
C873 0.47 F:2125
R856 27k
L807 56μH
C830 22p
R811 1000
L806 56μH
C829 22p
R810 1000
L805 56μH
C828 22p
R809 1000
C838 22p CH
C823 1 F:2125
R824 0
C866 33p CH
X801 4.43MHz
C872 0.01 F
R807 27k
C824 4700p
C825 22p CH
0.6Vp-p
2.2μsec
(4.43MHz)
IC801 3
R803 1500
R801 2700
L801 10μH
L809 56μH
C818 22p CH
R805 0 :1608
R808 10k
CN803 10PIN 0.5MM ZIF
1 BRIGHT
2 COLOR
3 N.C
4 EVF 5V
5 EVF GND
6 EVF OUT
7 EVF GND
8 SYNC
9 12.0V
10 13.5V
(TO VF-62)
CN801 10PIN CPC (B TO B)
10 PCO
9 BRIGHT
8 B OUT
7 R OUT
6 12V
5 SELFR
4 13.5V
3 G OUT
2 EVF GND
1 LC COM
CHECK PIN
WHITE BALANCE B
C849 0.1 F
C850 0.1 F
C851 0.1 F
C852 0.01 F
C813 10 6.3V :TA
C853 0.1 F
R IN
G IN
B IN
BRIGHT
VCC1
VCC1
GND1
GND1
BF
7 CONT
R820 27k
R822 22k
RV8 47
C839 0.01 F
C84 0.01 F
R821 22k
R823 33k
1H
IC802 6


18
19
20
21
22
23
24
25
26
27
28
29
WHITE BALANCE B
WHITE BALANCE B
(A-5)
IC802
LCD DRIVE
CXA1515Q
IC802 ⑩ 7.1Vp-p
IC802 ⑥ 7.1Vp-p
IC802 ⑧ 7.1Vp-p
1H
R IN
G IN
B IN
BRIGHT
VCC1
GND1
VCC2
GND2
V COM OUT
SIGC
V COM CONT
R OUT
R CLP
BF
SH B
SH G
SH R
B/BRIGHT
R/BRIGHT
RGB BRIGHT
FRP
7 CONT
B GAIN
R GAIN
RGB GAIN
B CLP
B OUT
G CLP
G OUT
GAIN CONT
RV801 47k
RV802 47k
RV803 47k
(B-2)
IC803
LCD TIMING GENERATOR
CXD2403R
RPD
VDD1
CKO
CKI
VSS1
SLMB
SLPL
VSTP
HP1
HP2
HP3
HP4
HD
XCLP
FRP
SH3
SH2
SH1
VD
FLD0
FLD1
SYNC
DVD
VSS2
VDD2
PLNT
XCLR
SLFR
SLCL
SLCK
TST0
TST1
TST2
WRIT
SLHS
X3DM
VSS3
HCK1
HCK2
HST1
VCK2
VCK1
VST1
EN
CLR
VST2
HST2
VEE
VCO
RV804 47k
D801 MA365
(B-7)
Q801 XP4601
BUFFER
(A-1)
SWITCH
Q802 2SD2216QR
CN802 16P 0.5MM ZIF
1 G
2 R
3 B
4 H VSS
5 H OUT
6 HCK 1
7 HCK 2
8 HST
9 HVDD
10 VCK 2
11 VCK 1
12 V VSS
13 VST
14 V VDD
15 V OUT
16 COM
(TO LCD PANEL)
CN902 16PIN
G 1
R 2
B 3
VSS 4
H OUT 5
HCK 1 6
HCK 2 7
HST 8
HVDD 9
VCK 2 10
VCK 1 11
VSS 12
VST 13
V VDD 14
V OUT 15
COM 16
IC803 ㉒㉓ 12Vp-p 0.6μsec
IC803 ㉑ 12Vp-p H
IC803 ⑲⑳ 11.8Vp-p 2H
IC803 ⑱ 11.8Vp-p V
IC801 ③ 0.6Vp-p (4.43MHz)
L807 56μH
L806 56μH
L805 56μH
L803 10μH
L808 8.2μH
L810 1μH :3216

• SIGNAL PATH (ANALOG)

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡»	➡⋙	
PB	⇨	⇨»	⇨⋙	


21
22
23
24
25
26
27
28
29
WHITE BALANCE B
(A-5)
IC802
LCD DRIVE
IC802 ⑩ 7.1Vp-p
1H
IC802 ⑧ 7.1Vp-p
R/BRIGHT
RGB BRIGHT
FRP
VCC2
VCC2
GND2
V COM OUT
SIGC
V COM CONT
R OUT
R CLP
B OUT
G CLP
G OUT
BUFFER
Q801 XP4601
(B-7)
(A-1)
SWITCH
Q802 2SD2216QR
CN802 16P 0.5MM ZIF
1 G
2 R
3 B
4 H VSS
5 H OUT
6 HCK 1
7 HCK 2
8 HST
9 HVDD
10 VCK 2
11 VCK 1
12 V VSS
13 VST
14 V VDD
15 V OUT
16 COM
(TO LCD PANEL)
CN902 16PIN
LCD PANEL
LCD901
COLOR LIQUID CRYSTAL DISPLAY
(B-2)
IC803
LCD TIMING GENERATOR
IC803 CXD2403R
HD
XCLP
FRP
SH3
SH2
SH1
VD
FLD0
FLD1
SYNC
OVD
VSS2
RPD
VDD1
CKO
CKI
VSS1
SLMB
SLPL
VSTP
HP1
HP2
HP3
HP4
VDD2
PLNT
XCLR
SLFR
SLCL
SLCK
TST0
TST1
TST2
WRIT
SLHS
X30M
VSS3
HCK1
HCK2
HST1
VCK2
VCK1
VST1
EN
CLR
VST2
HST2
VEE
VCO
IC803 ㉒㉓ 12Vp-p
IC803 ㉑ 12Vp-p
IC803 ⑲⑳ 11.8Vp-p
IC803 ⑱ 11.8Vp-p
L803 10μH
L808 8.2μH
L810 1μH
RV804 47k
D801 MA365
C867 0.01 F
C822 0.1 F
C863 0.01 F
C864 2.2 16 TA:A
C865 0.01 F

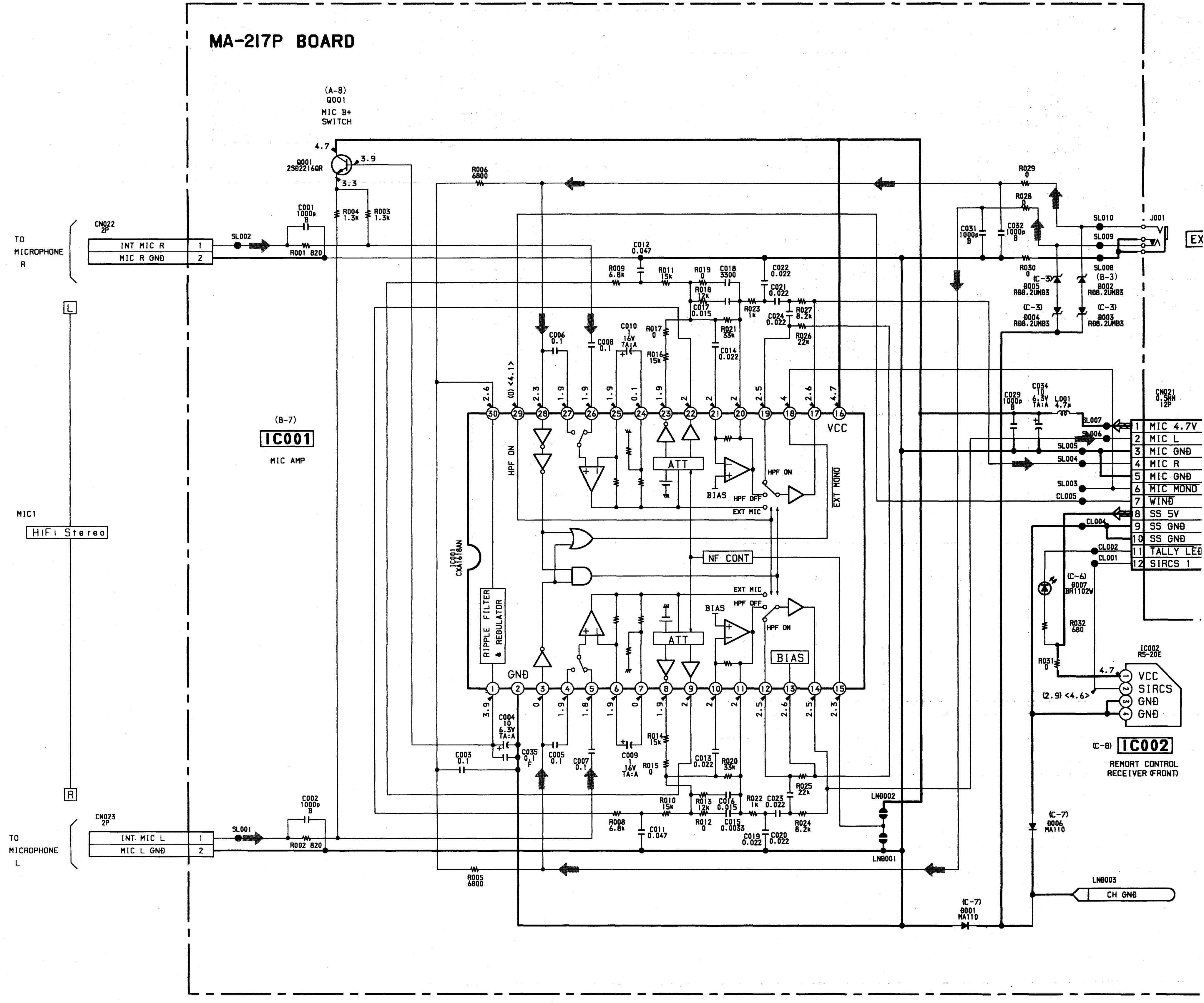
• SIGNAL PATH (ANALOG)

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡»	➡»»	
PB	⇨	⇨»	⇨»»	

MA-217P (MIC AMP), AU-154P (AFM AUDIO) SCHEMATIC DIAGRAM

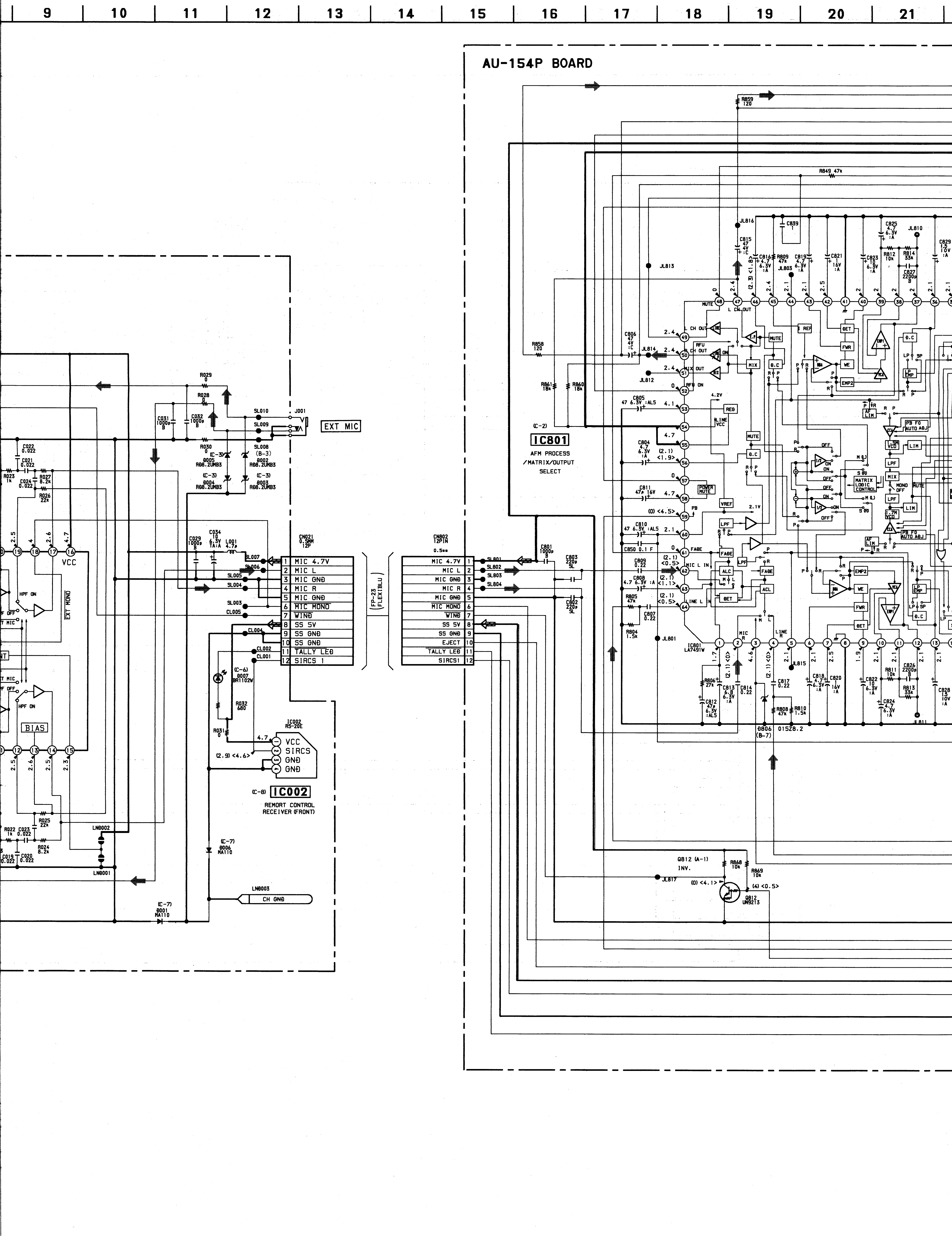
– Ref. No. MA-217P BOARD : 9,000 Series, AU-154P BOARD : 10,000 Series –

no mark : REC/PB mode
( ) : REC mode
< > : PB mode



MA-217P BOARD
(A-8)
Q001
MIC B+
SWITCH
Q001
2SB22160R
4.7
3.9
3.3
TO
MICROPHONE
R
CN022
2P
INT MIC R
MIC R GND
SL002
C001
1000p
B
R004
1.3k
R003
1.3k
R001 820
R006
6800
C012
0.047
R009
6.8k
R011
15k
R019
0
C018
3300
R018
12k
C017
0.015
C022
0.022
C021
0.022
R023
1k
R027
8.2k
C024
0.022
R021
33k
C014
0.022
R026
22k
C006
0.1
C008
0.1
C010
1
16V
TA:A
R017
0
R016
15k
(B-7)
IC001
MIC AMP
IC001
CXA1618AN
HPF ON
RIPPLE FILTER
& REGULATOR
ATT
BIAS
HPF ON
HPF OFF
EXT MIC
EXT MONO
VCC
NF CONT
GND
MIC1
HiFi Stereo
L
R
C004
10
6.3V
TA:A
C003
0.1
C035
0.1
F
C005
0.1
C007
0.1
C009
1
16V
TA:A
R014
15k
R015
0
C013
0.022
R020
33k
R025
22k
R010
15k
R013
12k
C016
0.015
R022
1k
C023
0.022
R008
6.8k
C011
0.047
R012
0
C015
0.0033
C019
0.022
C020
0.022
R024
8.2k
TO
MICROPHONE
L
CN023
2P
INT MIC L
MIC L GND
SL001
C002
1000p
B
R002 820
R005
6800
LN0002
LN0001
(C-7)
D001
MA110
R029
0
R028
0
C031
1000p
B
C032
1000p
B
R030
0
SL010
SL009
SL008
J001
EX
(C-3)
D005
RB8.2UMB3
(B-3)
D002
RB8.2UMB3
(C-3)
D004
RB8.2UMB3
(C-3)
D003
RB8.2UMB3
C029
1000p
B
C034
10
6.3V
TA:A
L001
4.7μ
SL007
SL006
SL005
SL004
SL003
CL005
CL004
CL002
CL001
CN021
0.5MM
12P
1 MIC 4.7V
2 MIC L
3 MIC GND
4 MIC R
5 MIC GND
6 MIC MONO
7 WIND
8 SS 5V
9 SS GND
10 SS GND
11 TALLY LE
12 SIRCS 1
(C-6)
D007
BR1102W
R032
680
R031
0
IC002
RS-20E
4.7
(2.9) <4.6>
VCC
SIRCS
GND
GND
(C-8) IC002
REMORT CONTROL
RECEIVER (FRONT)
(C-7)
D006
MA110
LN0003
CH GND
2.6
(0) <4.1>
2.3
1.9
1.9
0.1
1.9
2
2
2
2.5
4
2.6
4.7
3.9
0
1.9
1.8
1.9
0
1.9
2
2
2
2.5
2.6
2.5
2.3

16


9
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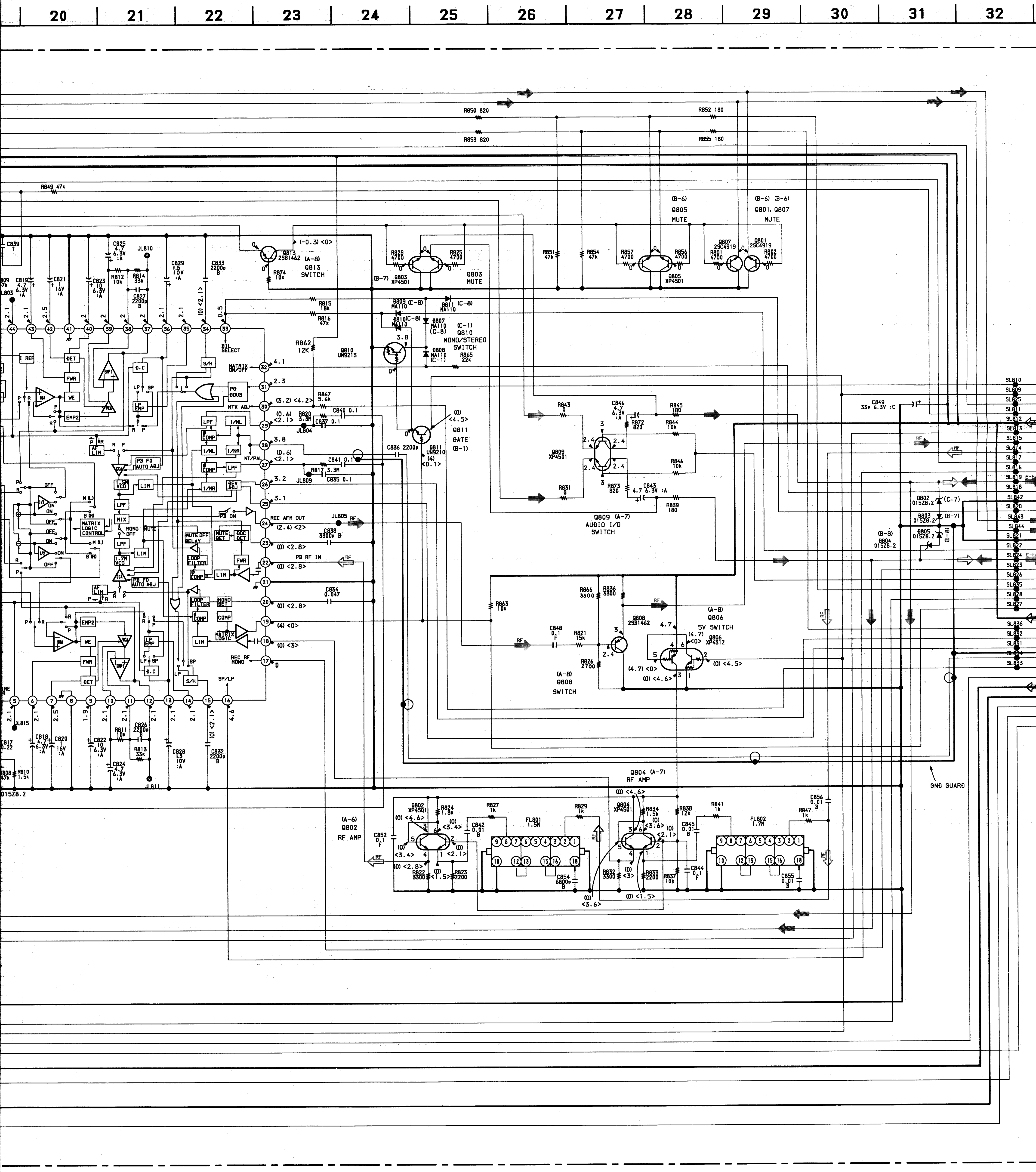
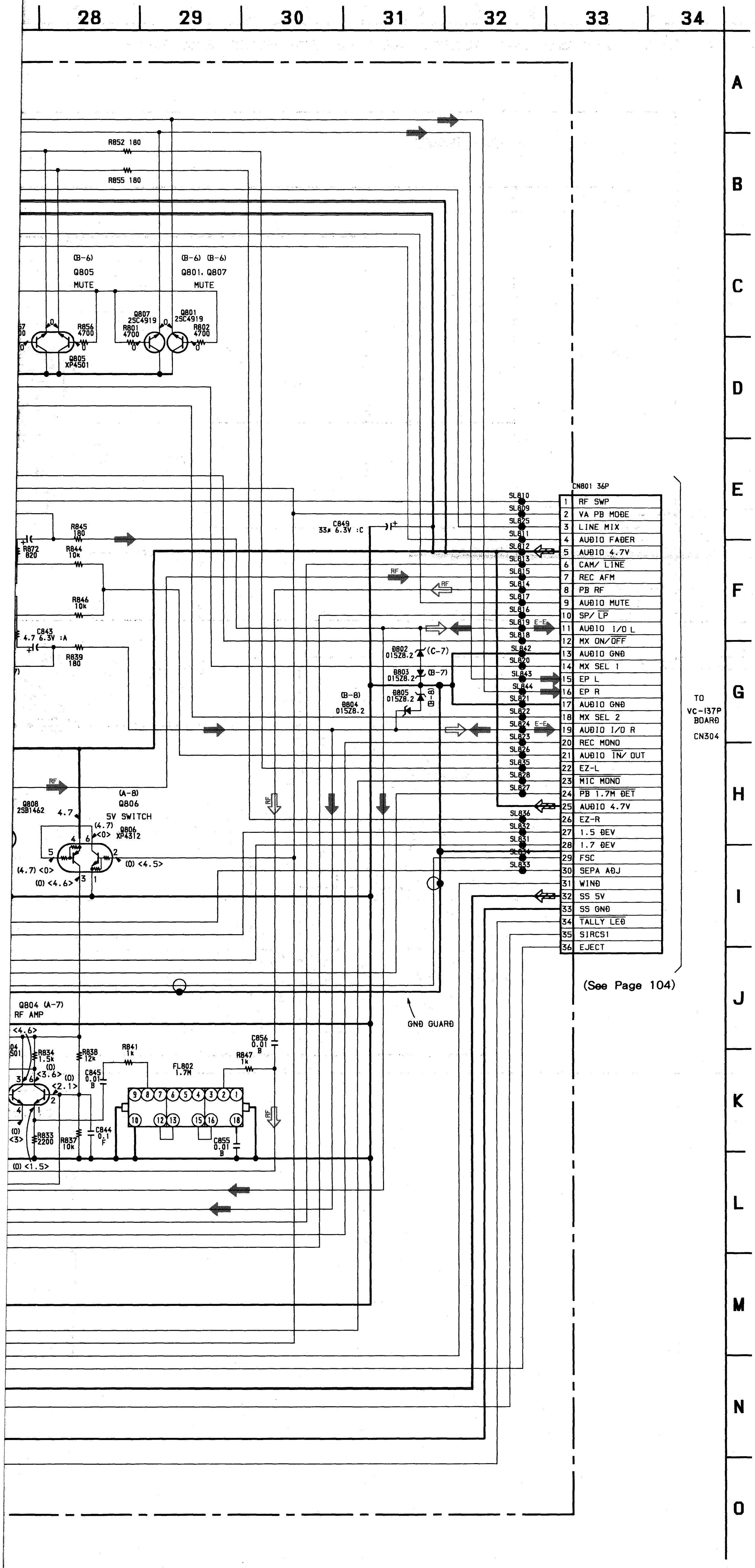
20
21
AU-154P BOARD
EXT MIC
J001
SL010
SL009
SL008
R029
R028
R030
C031 1000p B
C032 1000p B
D005 RB8.2UMB3
D004 RB8.2UMB3
D002 RB8.2UMB3
D003 RB8.2UMB3
VCC
HPF ON
EXT MONO
BIAS
CN021 0.5MM 12P
1 MIC 4.7V
2 MIC L
3 MIC GND
4 MIC R
5 MIC GND
6 MIC MONO
7 WIND
8 SS 5V
9 SS GND
10 SS GND
11 TALLY LED
12 SIRCS 1
FP-23 (FLEXIBLE)
CN802 12PIN 0.5mm
MIC 4.7V 1
MIC L 2
MIC GND 3
MIC R 4
MIC GND 5
MIC MONO 6
WIND 7
SS 5V 8
SS GND 9
EJECT 10
TALLY LED 11
SIRCS1 12
SL801
SL802
SL803
SL804
C801 1000p B
C803 220p SL
C802 220p SL
D007 BR1102W
R032 680
R031 0
IC002 RS-20E
VCC
SIRCS
GND
GND
(2.9) <4.6>
(C-8) IC002
REMORT CONTROL RECEIVER (FRONT)
LN8002
LN8001
LN8003
CH GND
D006 MA110
D001 MA110
(C-2) IC801
AFM PROCESS /MATRIX/OUTPUT SELECT
IC801 LA7491W
R858 120
R859 120
R849 47k
R861 18k
R860 18k
JL813
JL814
JL812
JL816
JL810
JL801
JL815
JL811
JL817
MUTE
L CH OUT
R CH OUT
RFU OUT
MIX OUT
RFU ON
LINE VCC
REG
POWER MUTE
VREF
LPF
FADE
ALC
DET
ACL
MIC L IN
LINE L IN
MATRIX LOGIC CONTROL
MONO
EMP2
FWR
WE
B.C
MIX
REF
LIM
PB FO AUTO ADJ
1.7M VCO
D806 01528.2 (B-7)
Q812 (A-1) INV.
Q812 UN9213
R868 10k
R869 10k
(0) <4.1>
(4) <0.5>



20
21
22
23
24
25
26
27
28
29
30
31
32
R850 820
R853 820
R852 180
R855 180
R849 47k
(B-6)
Q805
MUTE
(B-6) (B-6)
Q801, Q807
MUTE
Q813
2SB1462
(A-8)
Q813
SWITCH
R874 10k
Q803
XP4501
Q803
MUTE
R828 4700
R825 4700
R851 47k
R854 47k
R857 4700
R856 4700
Q805
XP4501
Q807
2SC4919
Q801
2SC4919
R801 4700
R802 4700
C839 1
C825 4.7 6.3V :A
JL810
C829 1.5 10V :A
C833 2200p B
R812 10k
R814 33k
C827 2200p B
C821 1 16V :A
C823 10 6.3V :A
C819 4.7 6.3V :A
JL803
R815 18k
R816 47k
D809 MA110 (C-8)
D811 MA110 (C-8)
D810 MA110 (C-8)
D807 MA110 (C-8)
(C-1)
Q810
MONO/STEREO
SWITCH
D808 MA110 (C-1)
R865 22k
R862 12K
Q810 UN9213
BIL SELECT
MATRIX ON/OFF
MTX ADJ
PG DOUB
R867 5.6k
R820 3.3M
JL804
C840 0.1
C837 0.1
Q811 UN9210
GATE
(B-1)
C836 2200p
C841 0.1
R817 3.3M
C835 0.1
JL809
NT/PAL
REC AFM OUT
JL805
C838 3300p B
PB RF IN
C834 0.047
REC RF MONO
SP/LP
R843 0
C846 4.7 6.3V :A
R845 180
R872 820
R844 10k
Q809 XP4501
R846 10k
R831 0
R873 820
C843 4.7 6.3V :A
R839 180
Q809 (A-7)
AUDIO I/O
SWITCH
C849 33μ 6.3V :C
D802 01SZ8.2 (C-7)
D803 01SZ8.2 (B-7)
D805 01SZ8.2
(B-8) D804 01SZ8.2
R863 10k
R866 3300
R836 3300
Q808 2SB1462
(A-8)
Q806
5V SWITCH
Q806 XP4312
C848 0.1 F
R821 15k
R826 2700
(A-8)
Q808
SWITCH
GND GUARD
Q804 (A-7)
RF AMP
(A-6)
Q802
RF AMP
Q802 XP4501
R824 1.8k
C852 0.1 F
R822 3300
R823 2200
R827 1k
C842 0.01 B
FL801 1.5M
C854 6800p B
R829 1k
Q804 XP4501
R834 1.5k
R838 12k
R832 3300
R833 2200
R837 10k
C845 0.01 B
C844 0.1 F
R841 1k
FL802 1.7M
C856 0.01 B
R847 1k
C855 0.01 B
C817 0.22
C818 4.7 6.3V :A
C820 1 16V :A
C822 10 6.3V :A
C824 4.7 6.3V :A
R811 10k
C826 2200p B
R813 33k
C828 1.5 10V :A
C832 2200p B
JL815
JL811
R808 47k
R810 1.5k
01SZ8.2
SL810
SL809
SL825
SL811
SL812
SL813
SL815
SL814
SL817
SL816
SL819
SL818
SL842
SL820
SL843
SL844
SL821
SL822
SL824
SL823
SL826
SL835
SL828
SL827
SL836
SL832
SL831
SL834
SL833
REF
BET
FWR
WE
EMP2
AF LIM
PB FO AUTO ADJ
VCO
LIM
LPF
MIX
MATRIX LOGIC CONTROL
MONO OFF
MUTE
1.7M VCO
LP EMP
D.C
S/H
LPF
1/NL
COMP
1/NR
DEV ADJ
MUTE OFF DELAY
MUTE DET
DOC DET
LOOP FILTER
MONO DET
MATRIX LOGIC
PB ON
RF


28
29
30
31
32
33
34
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
R852 180
R855 180
(B-6)
Q805
MUTE
(B-6) (B-6)
Q801, Q807
MUTE
Q807
2SC4919
R801
4700
Q801
2SC4919
R802
4700
R856
4700
Q805
XP4501
R845
180
R872
820
R844
10k
R846
10k
C843
4.7 6.3V :A
R839
180
C849
33μ 6.3V :C
RF
RF
E-E
E-E
D802
01SZ8.2
(C-7)
D803
01SZ8.2
(B-7)
D805
01SZ8.2
(B-8)
(B-8)
D804
01SZ8.2
RF
(A-8)
Q806
5V SWITCH
Q808
2SB1462
4.7
(4.7)
<0>
Q806
XP4312
(4.7) <0>
(0) <4.6>
(0) <4.5>
RF
RF
Q804 (A-7)
RF AMP
<4.6>
R834
1.5k
(0)
<3.6>
(0)
<2.1>
R838
12k
R841
1k
C845
0.01
B
FL802
1.7M
R847
1k
C856
0.01
B
C844
0.1
F
C855
0.01
B
R833
2200
R837
10k
(0)
<3>
(0) <1.5>
GND GUARD
SL810
SL809
SL825
SL811
SL812
SL813
SL815
SL814
SL817
SL816
SL819
SL818
SL842
SL820
SL843
SL844
SL821
SL822
SL824
SL823
SL826
SL835
SL828
SL827
SL836
SL832
SL831
SL834
SL833
CN801 36P
1 RF SWP
2 VA PB MODE
3 LINE MIX
4 AUDIO FADER
5 AUDIO 4.7V
6 CAM/ LINE
7 REC AFM
8 PB RF
9 AUDIO MUTE
10 SP/ LP
11 AUDIO I/O L
12 MX ON/OFF
13 AUDIO GND
14 MX SEL 1
15 EP L
16 EP R
17 AUDIO GND
18 MX SEL 2
19 AUDIO I/O R
20 REC MONO
21 AUDIO IN/ OUT
22 EZ-L
23 MIC MONO
24 PB 1.7M DET
25 AUDIO 4.7V
26 EZ-R
27 1.5 DEV
28 1.7 DEV
29 FSC
30 SEPA ADJ
31 WIND
32 SS 5V
33 SS GND
34 TALLY LED
35 SIRCS1
36 EJECT
TO
VC-137P
BOARD
CN304
(See Page 104)

• SIGNAL PATH (ANALOG)

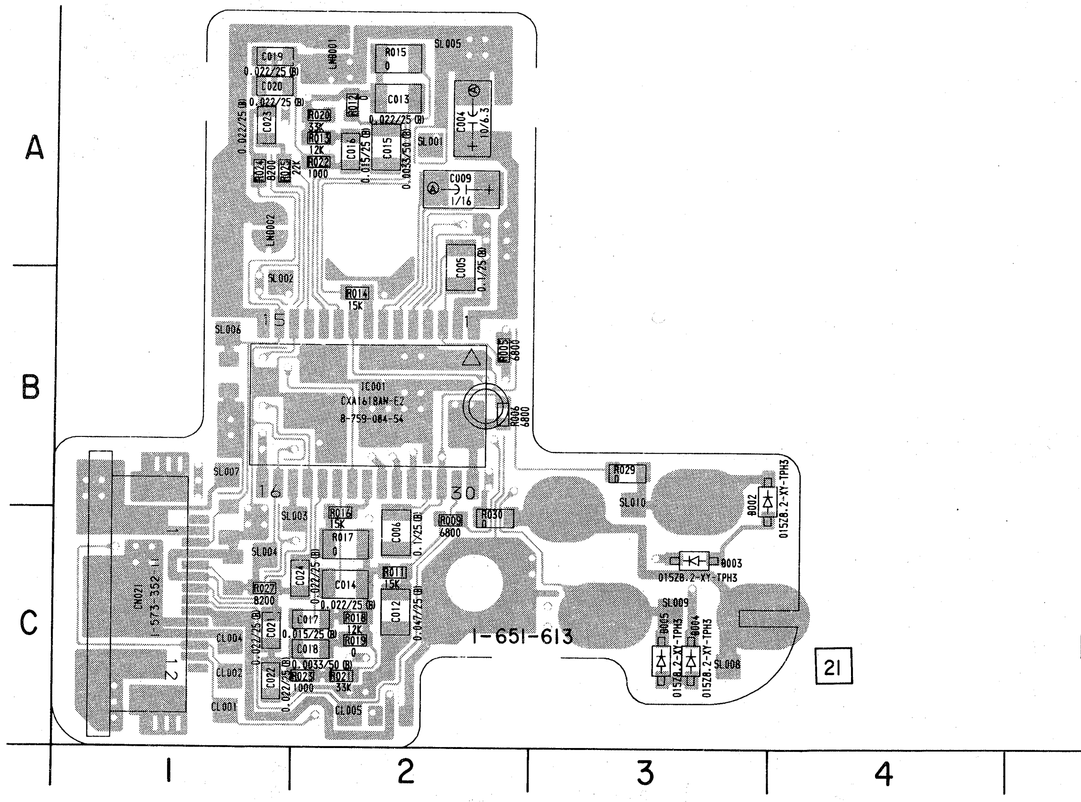
	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡》	➡》》	➡
PB	⇨	⇨》	⇨》》	⇨

MA-217P (MIC AMP), AU-154P (AFM AUDIO) PRINTED WIRING BOARD

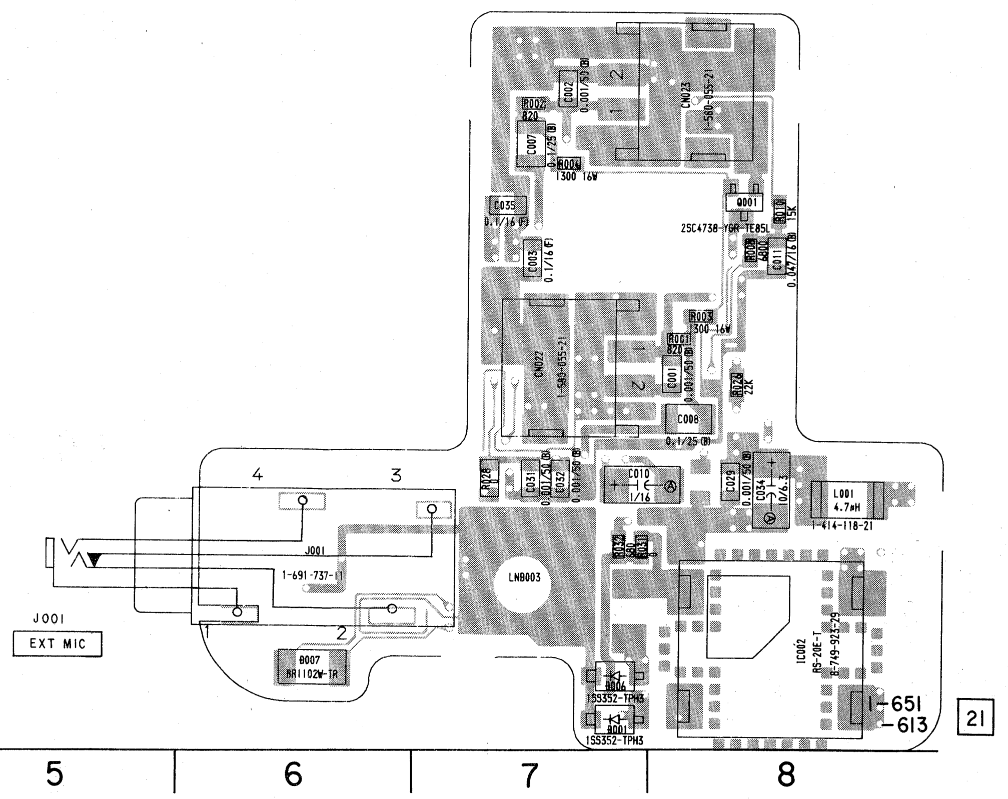
– Ref. No. MA-217P BOARD : 9,000 Series, AU-154P BOARD : 10,000 Series –

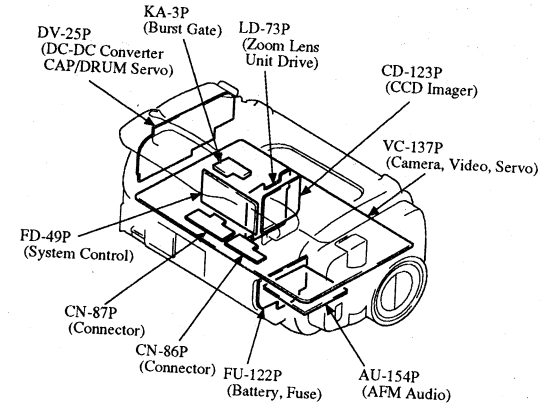
- For printed wiring boards
- AU-154P board is a six-layer print board. However, the patterns of layers 2 to 5 have not been included in the diagram.

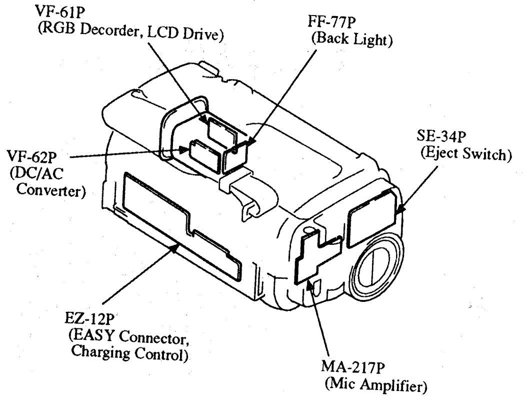
MA-217P BOARD – A SIDE –


A
B
C
1
2
3
4
IC001
CXA1618AM-E2
8-759-084-54
1-651-613
21

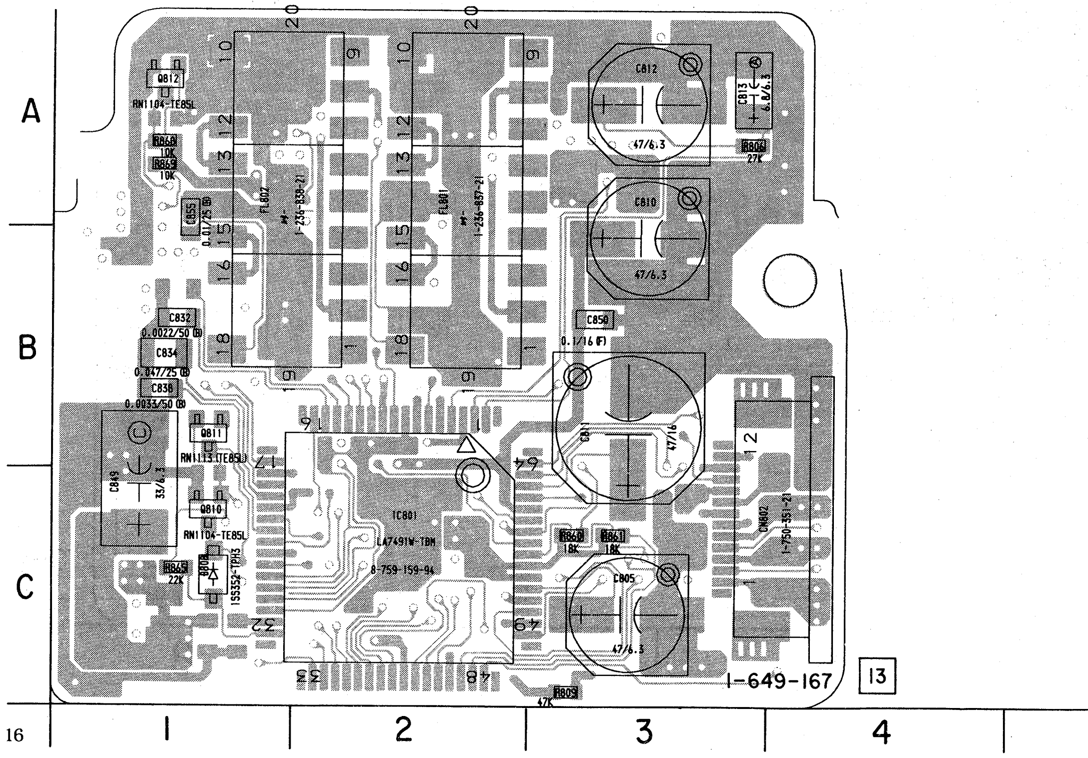
MA-217P BOARD – B SIDE –


J001
EXT MIC
5
6
7
8
IC002
1-651-613
21

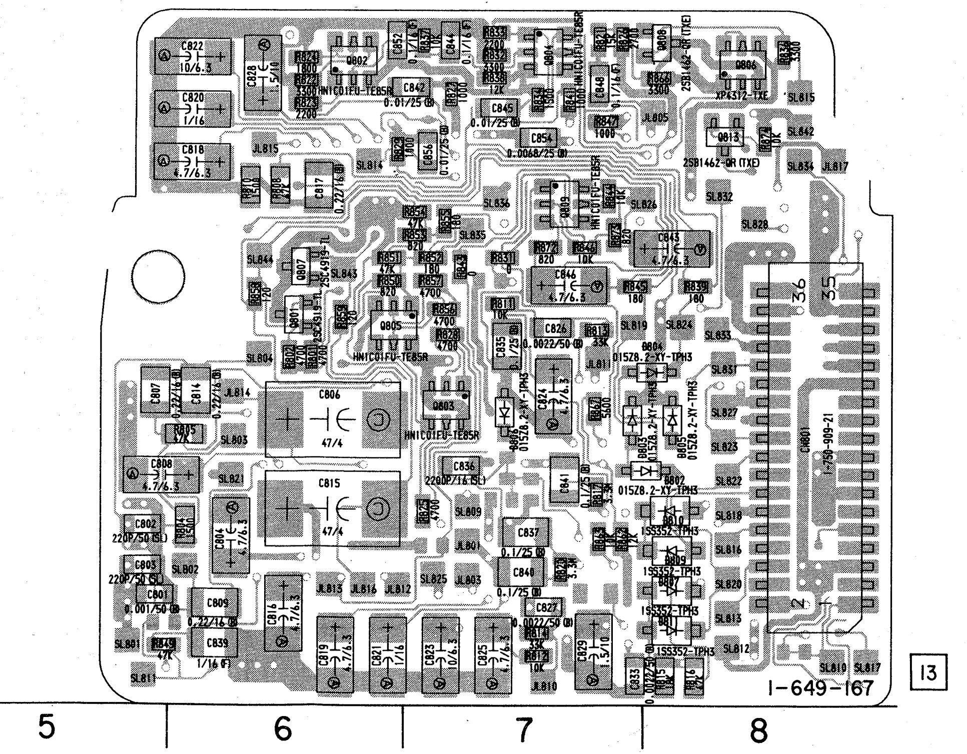

KA-3P
(Burst Gate)
LD-73P
(Zoom Lens Unit Drive)
DV-25P
(DC-DC Converter CAP/DRUM Servo)
CD-123P
(CCD Imager)
VC-137P
(Camera, Video, Servo)
FD-49P
(System Control)
CN-87P
(Connector)
CN-86P
(Connector)
FU-122P
(Battery, Fuse)
AU-154P
(AFM Audio)


VF-61P
(RGB Decorder, LCD Drive)
FF-77P
(Back Light)
SE-34P
(Eject Switch)
VF-62P
(DC/AC Converter)
EZ-12P
(EASY Connector, Charging Control)
MA-217P
(Mic Amplifier)

AU-154P BOARD – A SIDE –

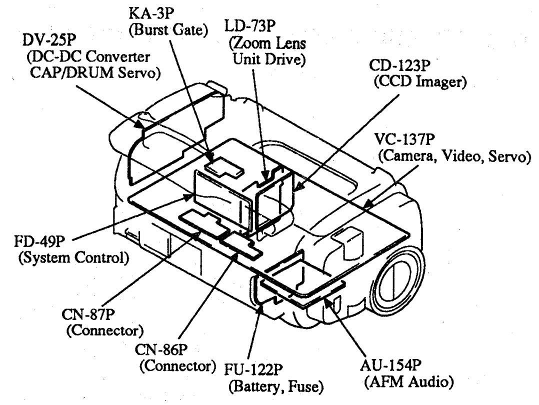

A
B
C
16
1
2
3
4
IC801
LA7491W-TBM
8-759-159-94
1-649-167
13

AU-154P BOARD – B SIDE –

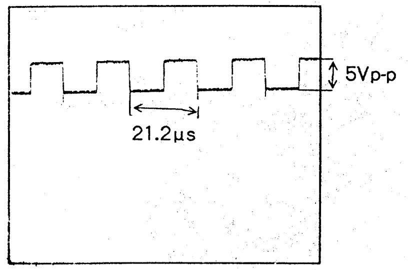

5
6
7
8
CN801
1-750-909-21
1-649-167
13

LD-73P (ZOOM LENS UNIT DRIVE) PRINTED WIRING BOARD

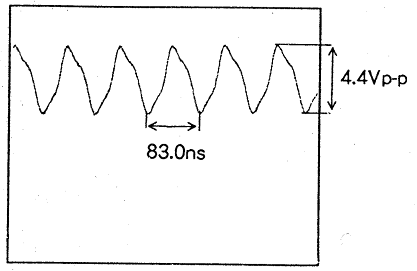
– Ref. No. LD-73P BOARD : 11,000 Series –


KA-3P
(Burst Gate)
LD-73P
(Zoom Lens
Unit Drive)
DV-25P
(DC-DC Converter
CAP/DRUM Servo)
CD-123P
(CCD Imager)
VC-137P
(Camera, Video, Servo)
FD-49P
(System Control)
CN-87P
(Connector)
CN-86P
(Connector)
FU-122P
(Battery, Fuse)
AU-154P
(AFM Audio)

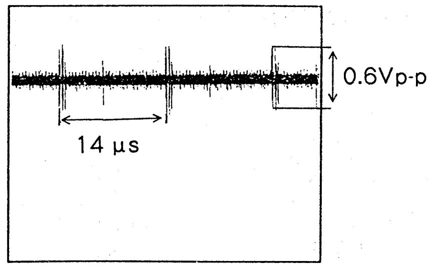
① REC IC751 74 Pin



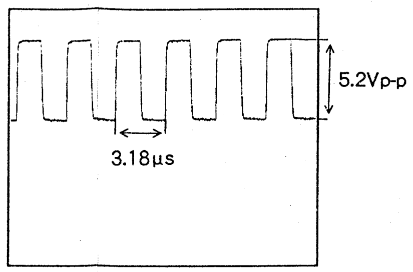
② REC IC751 40 Pin



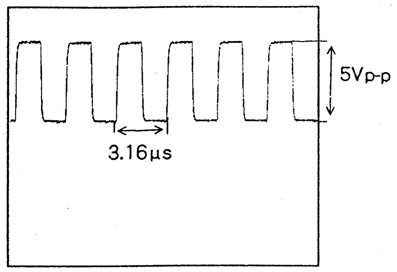
③～⑥ REC/PB IC752 12～15 Pin



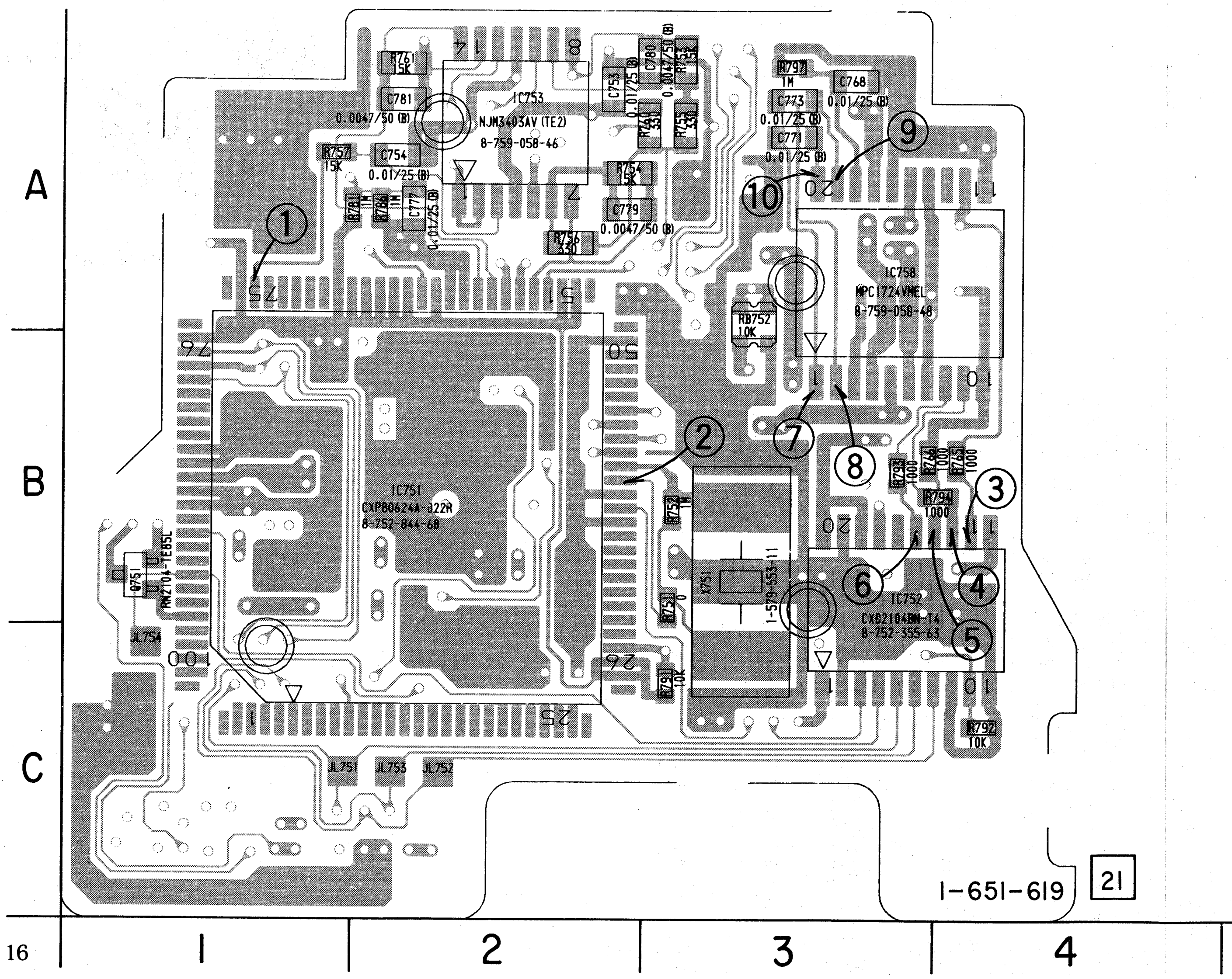
⑦⑧ REC/PB IC758 1,2 Pin



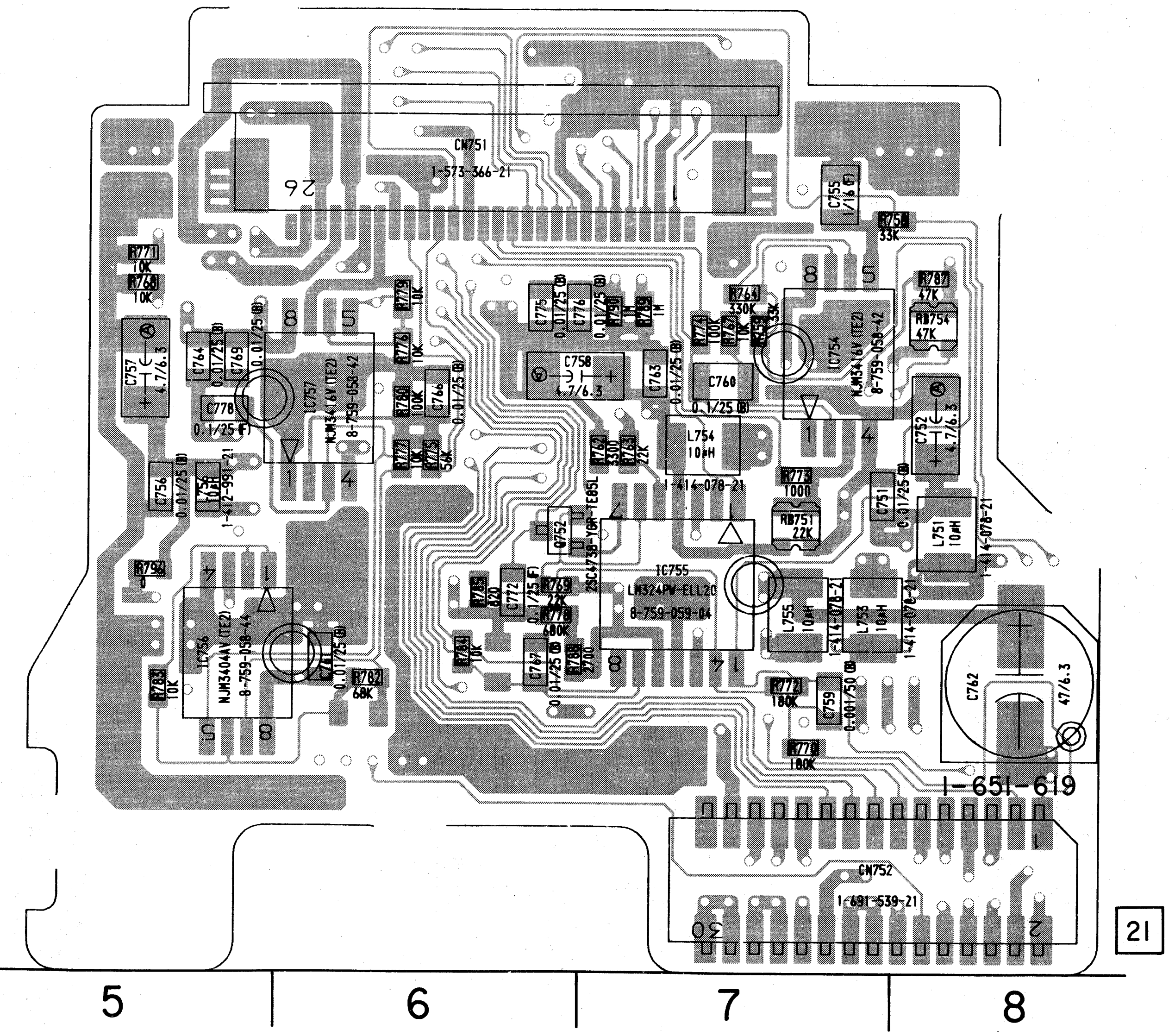
⑨⑩ REC/PB IC758 19,20 Pin



LD-73P BOARD – A SIDE –

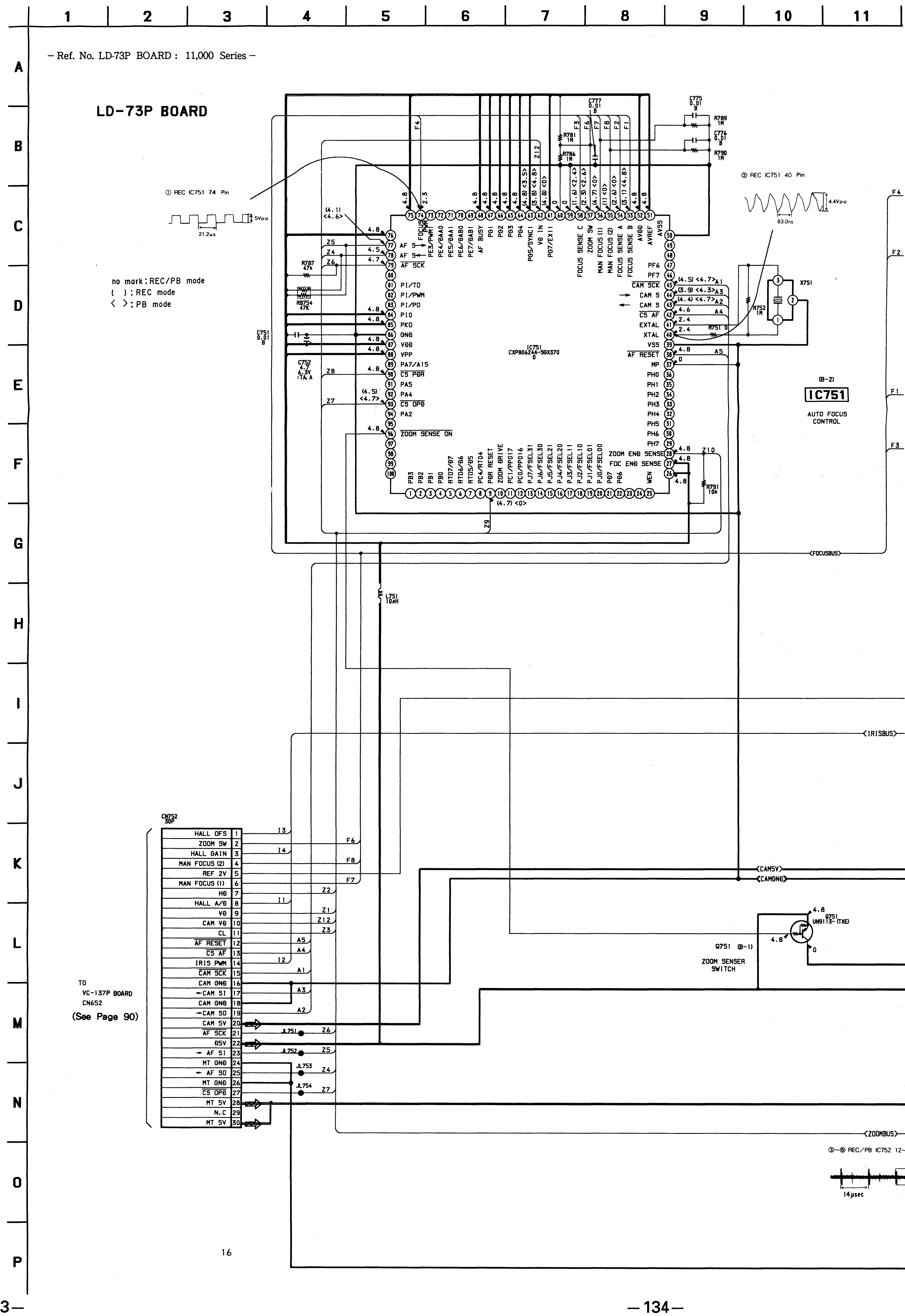

A
B
C
1
2
3
4
IC751
CXP80624A-022R
8-752-844-68
IC752
CXB2104BN-T4
8-752-355-63
IC753
NJM3403AV (TE2)
8-759-058-46
IC758
MPC1724VNEL
8-759-058-48
X751
1-579-553-11
RB752
10K
D751
RN2104-TE85L
R761
15K
C781
0.0047/50 (B)
R757
15K
C754
0.01/25 (B)
C753
C780
R755
R797
1M
C768
0.01/25 (B)
C773
0.01/25 (B)
C771
0.01/25 (B)
C779
0.0047/50 (B)
R754
R758
330
R792
10K
R794
1000
R793
1000
R731
10K
JL751
JL753
JL752
JL754
①
②
③
④
⑤
⑥
⑦
⑧
⑨
⑩
1-651-619
21

LD-73P BOARD – B SIDE –

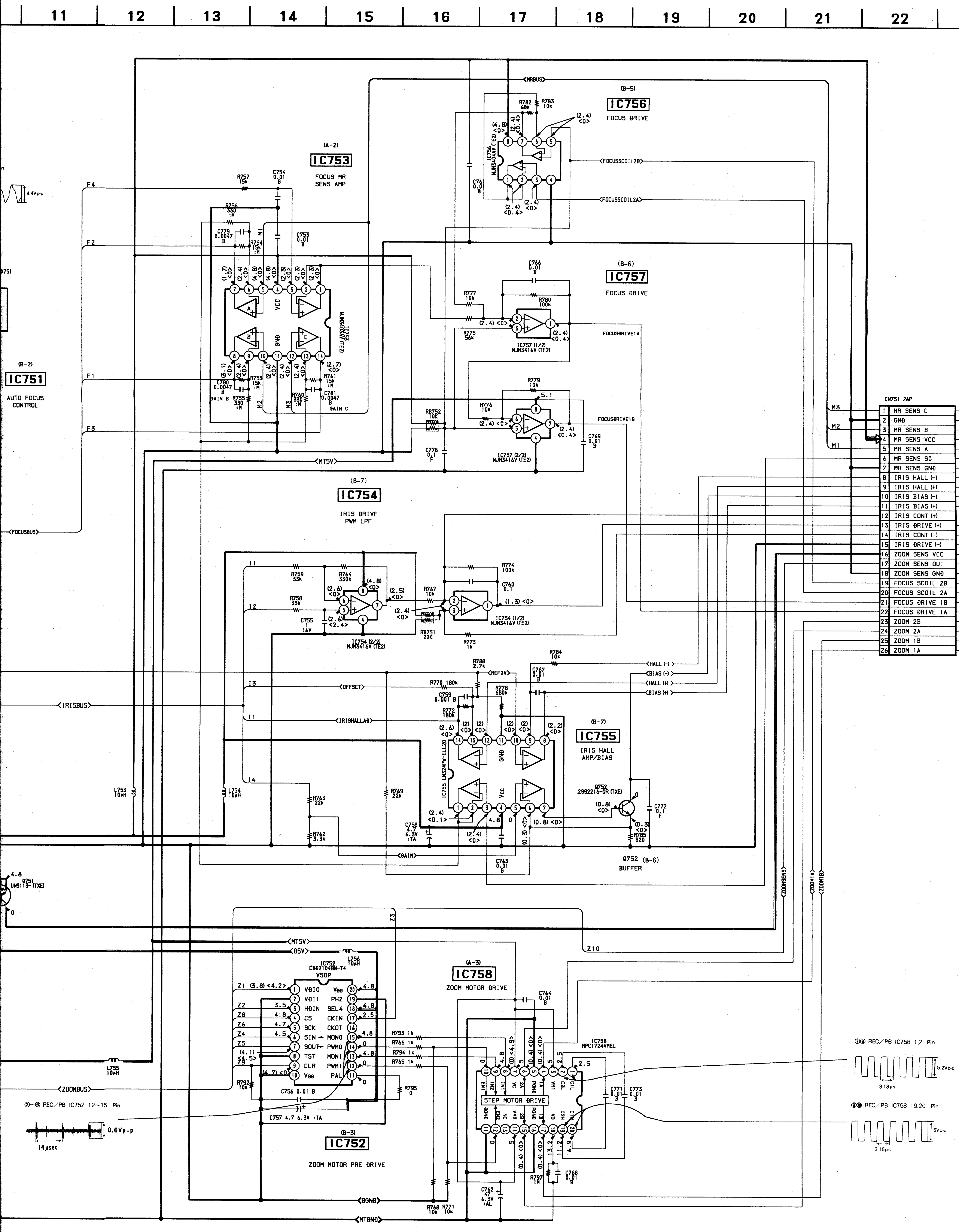

5
6
7
8
CN751
1-573-366-21
CN752
1-691-539-21
IC754
NJM3416V (TE2)
8-759-058-42
IC755
LM324PW-ELL20
8-759-059-04
IC756
NJM3404AV (TE2)
8-759-058-44
IC757
NJM3416V (TE2)
8-759-058-42
Q752
2SC4738-YGR-TE85L
C762
47/6.3
C757
4.7/6.3
C752
4.7/6.3
C758
4.7/6.3
C760
0.1/25 (B)
L751
10μH
L753
10μH
L754
10μH
L755
10μH
L756
10μH
R756
33K
R787
47K
RB754
47K
RB751
22K
R773
1000
R777
180K
R778
180K
R782
68K
R771
10K
R768
10K
1-651-619
21

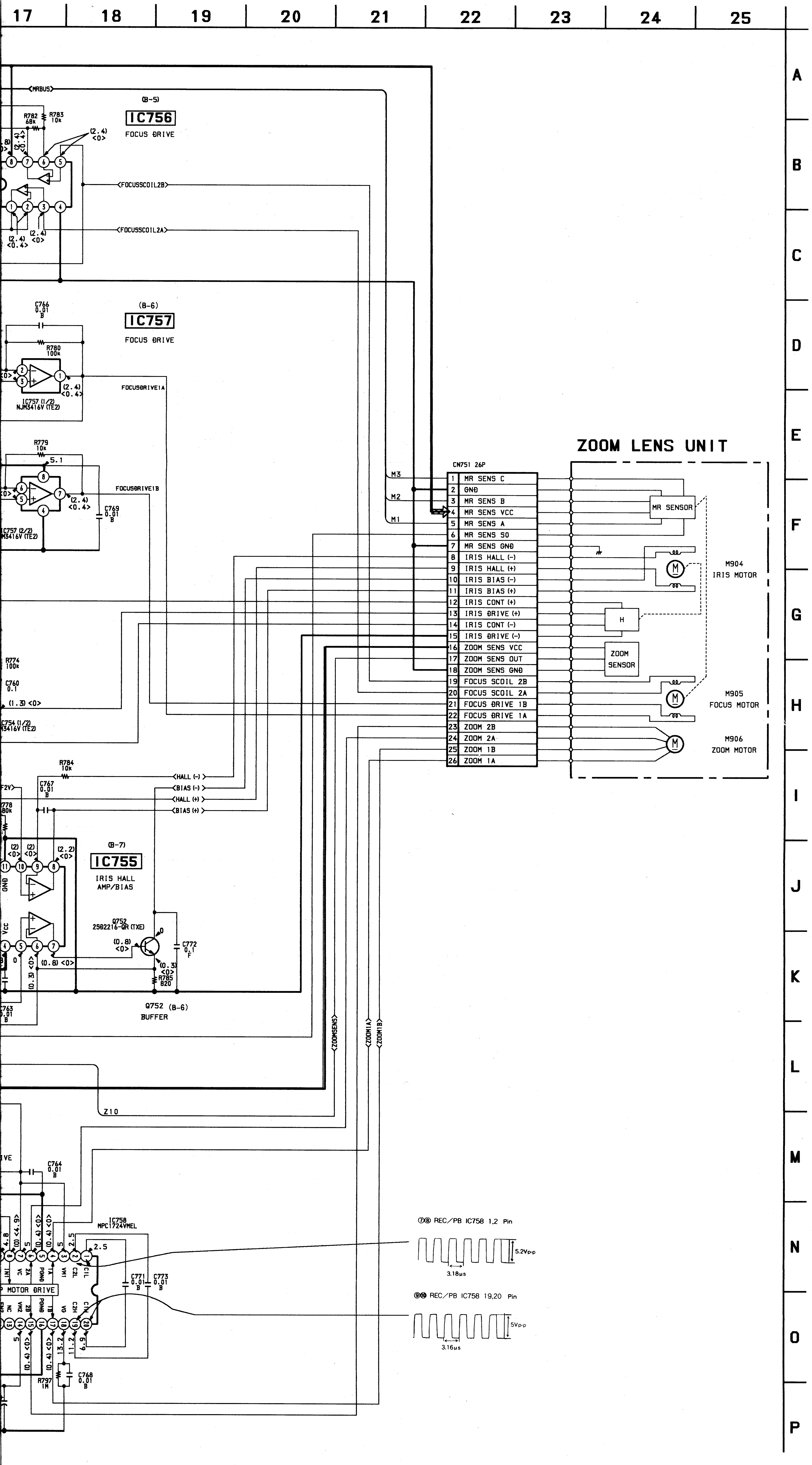
LD-73P (ZOOM LENS UNIT DRIVE) SCHEMATIC DIAGRAM

– Ref. No. LD-73P BOARD : 11,000 Series –



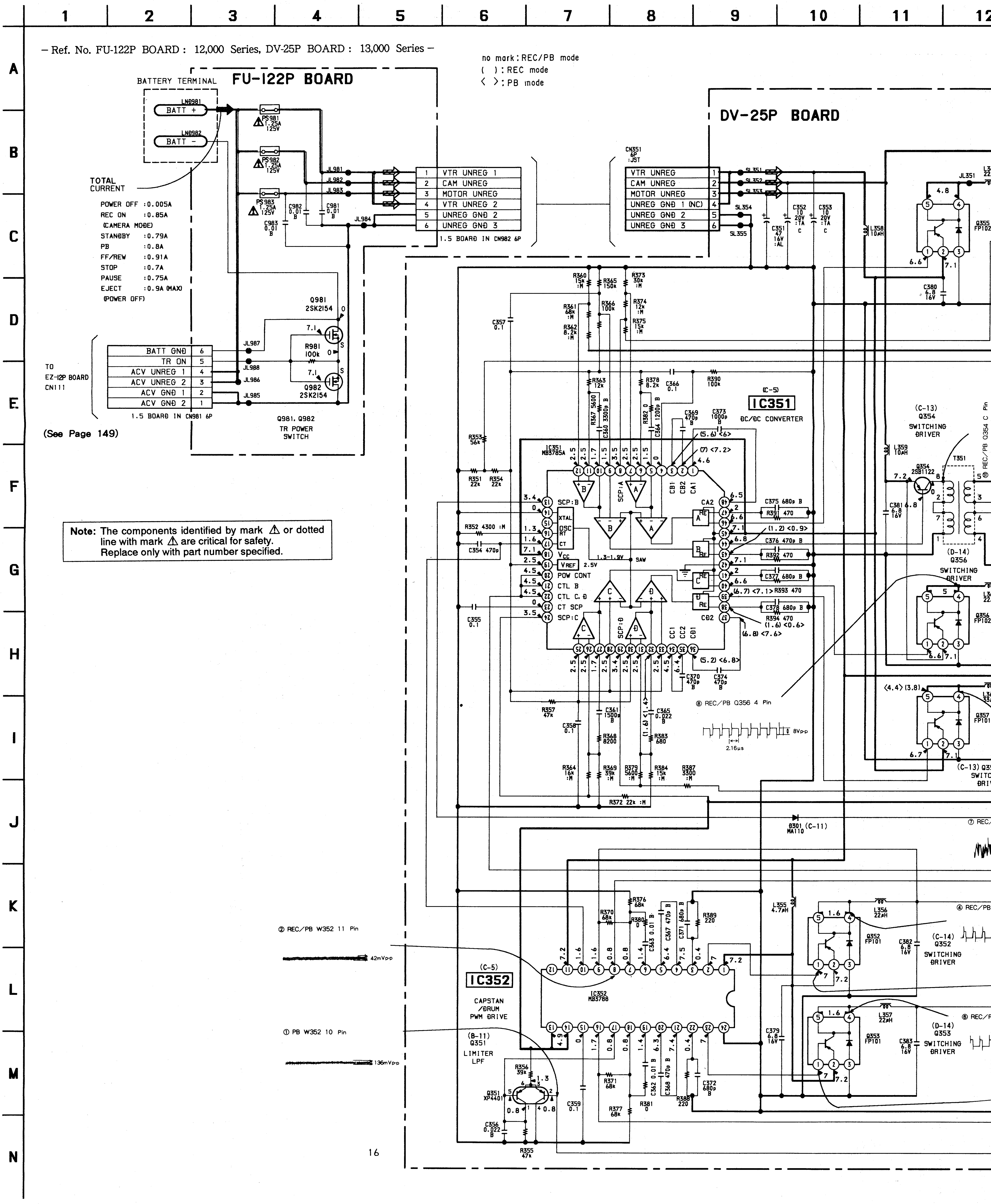
1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
LD-73P BOARD
① REC IC751 74 Pin
5Vp-p
21.2μs
② REC IC751 40 Pin
4.4Vp-p
83.0ns
no mark : REC/PB mode
( ) : REC mode
< > : PB mode
IC751
CXP80624A-S6X370
(B-2)
IC751
AUTO FOCUS CONTROL
C777 0.01 B
C775 0.01 B
R789 1M
C776 0.01 B
R790 1M
R781 1M
R786 1M
R787 47k
R8754 47k
C751 0.01 B
C752 4.7 6.3V :TA A
X751
R752 1M
R751 0
R791 10k
L751 10μH
Q751 UN9113-(TXE)
Q751 (B-1)
ZOOM SENSER SWITCH
FOCUS PWM
PE3/PWM1
PE4/BAA0
PE5/BAA1
PE6/BAB0
PE7/BAB1
AF BUSY
PG1
PG2
PG3
PG4
PG5/SYNC1
VB IN
PG7/EXI1
FOCUS SENSE C
ZOOM SW
MAN FOCUS (1)
MAN FOCUS (2)
FOCUS SENSE A
FOCUS SENSE B
AVDD
AVREF
AVSS
AF S
AF S
AF SCK
PI/TO
PI/PWM
PI/PO
PIO
PKO
GND
VDD
VPP
PA7/A15
CS PDR
PA5
PA4
CS OPD
PA2
ZOOM SENSE ON
PF6
PF7
CAM SCK
CAM S
CAM S
CS AF
EXTAL
XTAL
VSS
AF RESET
MP
PH0
PH1
PH2
PH3
PH4
PH5
PH6
PH7
ZOOM END SENSE
FOC END SENSE
PB3
PB2
PB1
PB0
RT07/B7
RT06/B6
RT05/B5
PC4/RT04
PDR RESET
ZOOM DRIVE
PC1/PP017
PC0/PP016
PJ7/FSEL31
PJ6/FSEL30
PJ5/FSEL21
PJ4/FSEL20
PJ3/FSEL11
PJ2/FSEL10
PJ1/FSEL01
PJ0/FSEL00
PD7
PB6
WEN
CN752 30P
HALL OFS 1
ZOOM SW 2
HALL GAIN 3
MAN FOCUS (2) 4
REF 2V 5
MAN FOCUS (1) 6
HD 7
HALL A/D 8
VD 9
CAM VD 10
CL 11
AF RESET 12
CS AF 13
IRIS PWM 14
CAM SCK 15
CAM GND 16
→CAM SI 17
CAM GND 18
→CAM SO 19
CAM 5V 20
AF SCK 21
85V 22
→ AF SI 23
MT GND 24
← AF SO 25
MT GND 26
CS OPD 27
MT 5V 28
N.C 29
MT 5V 30
TO VC-137P BOARD CN652
(See Page 90)
JL751
JL752
JL753
JL754
<FOCUSBUS>
<IRISBUS>
<CAM5V>
<CAMGND>
<ZOOMBUS>
③~⑥ REC/PB IC752 12~
14μsec
16


11
12
13
14
15
16
17
18
19
20
21
22
(B-5) IC756 FOCUS DRIVE
IC756 NJM3404AV (TE2)
R782 68k
R783 10k
<MRBUS>
<FOCUSSCOIL2B>
<FOCUSSCOIL2A>
(A-2) IC753 FOCUS MR SENS AMP
IC753 NJM3403AV (TE2)
R757 15k
C754 0.01 B
R756 330 :M
C779 0.0047 B
R754 15k :M
C753 0.01 B
F4
F2
F1
F3
4.4Vp-p
(B-2) IC751 AUTO FOCUS CONTROL
X751
C780 0.0047 B
R753 15k :M
GAIN B
R755 330 :M
M1
M2
M3
R760 330 :M
R761 15k :M
C781 0.0047 B
GAIN C
<FOCUSBUS>
(B-6) IC757 FOCUS DRIVE
C766 0.01 B
R777 10k
R780 100k
R775 56k
IC757 (1/2) NJM3416V (TE2)
FOCUSDRIVE1A
R779 10k
R776 10k
RB752 10k
C778 0.1 F
IC757 (2/2) NJM3416V (TE2)
FOCUSDRIVE1B
C769 0.01 B
<MT5V>
(B-7) IC754 IRIS DRIVE PWM LPF
R759 33k
R764 330k
R758 33k
C755 1 16V
IC754 (2/2) NJM3416V (TE2)
R767 10k
R774 100k
C760 0.1
RB751 22K
R773 1k
IC754 (1/2) NJM3416V (TE2)
I1
I2
I3
I4
<IRISBUS>
<OFFSET>
<IRISHALLAD>
R788 2.7k
<REF2V>
R784 10k
C767 0.01 B
R770 180k
C759 0.001 B
R778 680k
R772 180k
<HALL (-)>
<BIAS (-)>
<HALL (+)>
<BIAS (+)>
(B-7) IC755 IRIS HALL AMP/BIAS
IC755 LM324PW-ELL20
Q752 2SB2216-QR (TXE)
C772 0.1 F
R785 820
Q752 (B-6) BUFFER
L753 10μH
L754 10μH
R763 22k
R769 22k
R762 3.3k
C758 4.7 6.3V :TA
<GAIN>
C763 0.01 B
Q751 UN9113-(TXE)
CN751 26P
1 MR SENS C
2 GND
3 MR SENS B
4 MR SENS VCC
5 MR SENS A
6 MR SENS SO
7 MR SENS GND
8 IRIS HALL (-)
9 IRIS HALL (+)
10 IRIS BIAS (-)
11 IRIS BIAS (+)
12 IRIS CONT (+)
13 IRIS DRIVE (+)
14 IRIS CONT (-)
15 IRIS DRIVE (-)
16 ZOOM SENS VCC
17 ZOOM SENS OUT
18 ZOOM SENS GND
19 FOCUS SCOIL 2B
20 FOCUS SCOIL 2A
21 FOCUS DRIVE 1B
22 FOCUS DRIVE 1A
23 ZOOM 2B
24 ZOOM 2A
25 ZOOM 1B
26 ZOOM 1A
<ZOOMSENS>
<ZOOM1A>
<ZOOM1B>
Z3
Z10
<MT5V>
<D5V>
IC752 CXD2104BN-T4 VSOP
L756 10μH
VDD0 VDD PH2 VDD1 HDIN SEL4 CS CKIN SCK CKOT SIN MONO SOUT PWM0 TST MON1 CLR PWM1 VSS PAL
Z1 Z2 Z8 Z6 Z4 Z5 Z9
L755 10μH
R792 10k
<ZOOMBUS>
C756 0.01 B
R795 0
C757 4.7 6.3V :TA
③~⑥ REC/PB IC752 12~15 Pin
0.6Vp-p
14μsec
(B-3) IC752 ZOOM MOTOR PRE DRIVE
(A-3) IC758 ZOOM MOTOR DRIVE
C764 0.01 B
R793 1k
R766 1k
R794 1k
R765 1k
IC758 NPC1724VMEL
STEP MOTOR DRIVE
C771 0.01 B
C773 0.01 B
R797 1M
C768 0.01 B
C762 47 6.3V :AL
R768 10k
R771 10k
<DGND>
<MTGND>
⑦⑧ REC/PB IC758 1,2 Pin
5.2Vp-p
3.18μs
⑲⑳ REC/PB IC758 19,20 Pin
5Vp-p
3.16μs


17
18
19
20
21
22
23
24
25
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
<MRBUS>
(B-5)
IC756
FOCUS DRIVE
R782 68k
R783 10k
(2.4) <0>
<FOCUSSCOIL2B>
<FOCUSSCOIL2A>
(2.4) <0.4>
(2.4) <0>
(B-6)
IC757
FOCUS DRIVE
C766 0.01 B
R780 100k
(2.4) <0.4>
FOCUSDRIVE1A
IC757 (1/2) NJM3416V (TE2)
R779 10k
5.1
FOCUSDRIVE1B
(2.4) <0.4>
C769 0.01 B
IC757 (2/2) NJM3416V (TE2)
R774 100k
C760 0.1
(1.3) <0>
IC754 (1/2) NJM3416V (TE2)
ZOOM LENS UNIT
CN751 26P
M3
M2
M1
1 MR SENS C
2 GND
3 MR SENS B
4 MR SENS VCC
5 MR SENS A
6 MR SENS SO
7 MR SENS GND
8 IRIS HALL (-)
9 IRIS HALL (+)
10 IRIS BIAS (-)
11 IRIS BIAS (+)
12 IRIS CONT (+)
13 IRIS DRIVE (+)
14 IRIS CONT (-)
15 IRIS DRIVE (-)
16 ZOOM SENS VCC
17 ZOOM SENS OUT
18 ZOOM SENS GND
19 FOCUS SCOIL 2B
20 FOCUS SCOIL 2A
21 FOCUS DRIVE 1B
22 FOCUS DRIVE 1A
23 ZOOM 2B
24 ZOOM 2A
25 ZOOM 1B
26 ZOOM 1A
MR SENSOR
M904 IRIS MOTOR
H
ZOOM SENSOR
M905 FOCUS MOTOR
M906 ZOOM MOTOR
R784 10k
<HALL (-)>
<BIAS (-)>
<HALL (+)>
<BIAS (+)>
C767 0.01 B
R778 180k
(2) <0>
(2) <0>
(2.2) <0>
(B-7)
IC755
IRIS HALL AMP/BIAS
GND
VCC
Q752 2SB2216-QR (TXE)
(0.8) <0>
C772 0.1 F
(0.3) <0>
R785 820
(0.8) <0>
(0.3)
Q752 (B-6) BUFFER
C763 0.01 B
<ZOOMSENS>
<ZOOM1A>
<ZOOM1B>
Z10
C764 0.01 B
IC758 MPC1724VMEL
2.5
C771 0.01 B
C773 0.01 B
MOTOR DRIVE
C768 0.01 B
R797 1M
⑦⑧ REC/PB IC758 1,2 Pin
5.2Vp-p
3.18μs
⑲⑳ REC/PB IC758 19,20 Pin
5Vp-p
3.16μs

FU-122P (BATTERY, FUSE), DV-25P (DC-DC CONVERTER, CAP/DRUM SERVO), FK-3700 BLOCK (VTR FUNCTION SWITCH) SCHEMATIC DIAGRAM

– Ref. No. FU-122P BOARD : 12,000 Series, DV-25P BOARD : 13,000 Series –



1
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A
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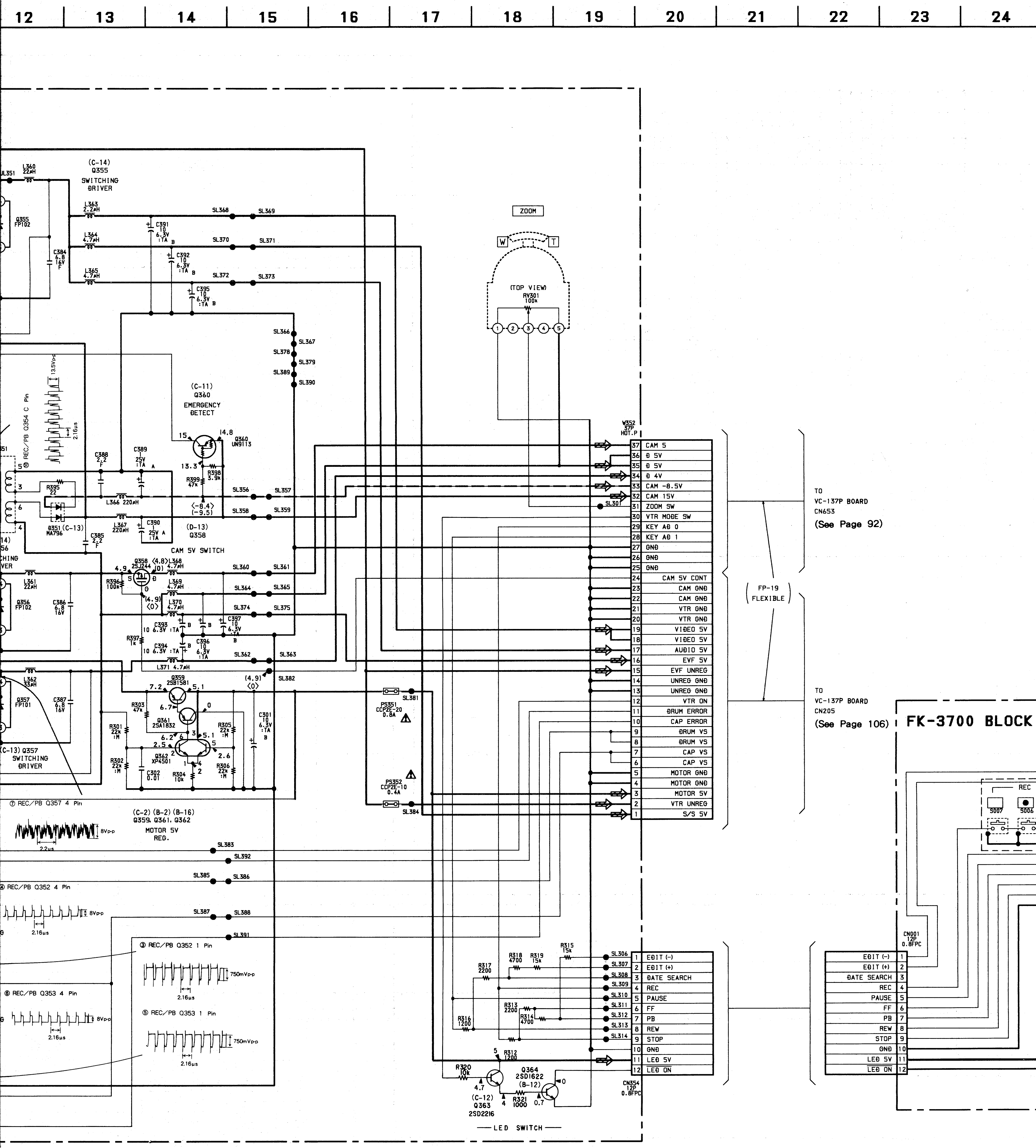
I
J
K
L
M
N
no mark : REC/PB mode
( ) : REC mode
< > : PB mode
BATTERY TERMINAL
FU-122P BOARD
LN0981
BATT +
LN0982
BATT −
PS981 1.25A 125V
PS982 1.25A 125V
PS983 1.25A 125V
TOTAL CURRENT
POWER OFF : 0.005A
REC ON : 0.85A
(CAMERA MODE)
STANDBY : 0.79A
PB : 0.8A
FF/REW : 0.91A
STOP : 0.7A
PAUSE : 0.75A
EJECT : 0.9A (MAX)
(POWER OFF)
JL981
JL982
JL983
JL984
C982 0.01 B
C981 0.01 B
C983 0.01 B
1 VTR UNREG 1
2 CAM UNREG
3 MOTOR UNREG
4 VTR UNREG 2
5 UNREG GND 2
6 UNREG GND 3
1.5 BOARD IN CN982 6P
Q981 2SK2154
R981 100k
Q982 2SK2154
Q981, Q982 TR POWER SWITCH
JL987
JL988
JL986
JL985
TO EZ-12P BOARD CN111
BATT GND 6
TR ON 5
ACV UNREG 1 4
ACV UNREG 2 3
ACV GND 1 2
ACV GND 2 1
1.5 BOARD IN CN981 6P
(See Page 149)
DV-25P BOARD
CN351 6P :JST
VTR UNREG 1
CAM UNREG 2
MOTOR UNREG 3
UNREG GND 1 (NC) 4
UNREG GND 2 5
UNREG GND 3 6
SL351
SL352
SL353
SL354
SL355
C352 10 20V :TA C
C353 10 20V :TA C
C351 47 16V :AL
JL351
L358 10μH
(C-5)
IC351
DC/DC CONVERTER
IC351 MB3785A
SCP:B
XTAL
OSC RT
CT
VCC
VREF 2.5V
POW CONT
CTL B
CTL C, D
CT SCP
SCP:C
SCP:A
SCP:D
SAW
CB1 CB2 CA1
CA2
CB2
CC1 CC2 CD1
R360 15k
R365 150k
R373 30k
R374 12k
R375 15k
R361 68k
R366 100k
R362 8.2k
C357 0.1
R363 12k
R378 8.2k
C366 0.1
R390 100k
R367 5600
C360 3300p B
R382 0
C364 1200p B
C369 470p B
C373 1000p B
R353 56k
R351 22k
R354 22k
R352 4300
C354 470p
C355 0.1
C375 680p B
R391 470
C376 470p B
R392 470
C377 680p B
R393 470
C378 680p B
R394 470
C370 470p B
C374 470p B
R357 47k
C358 0.1
C361 1500p B
C365 0.022 B
R368 8200
R383 680
R364 16k
R369 39k
R379 5600
R384 15k
R387 3300
R372 22k
⑧ REC/PB Q356 4 Pin
8Vp-p
2.16μs
D301 (C-11) MA110
(C-13) Q354 SWITCHING DRIVER
L359 10μH
Q354 2SB1122
T351
C381 6.8 16V
C380 6.8 16V
(D-14) Q356 SWITCHING DRIVER
Q355 FP102
Q356 FP102
Q357 FP101
(C-13) Q357 SWITCHING DRIVER
⑦ REC
② REC/PB W352 11 Pin
42mVp-p
① PB W352 10 Pin
136mVp-p
(C-5)
IC352
CAPSTAN /DRUM PWM DRIVE
IC352 MB3788
(B-11) Q351 LIMITER LPF
R356 39k
Q351 XP4401
C356 0.022 B
R355 47k
C359 0.1
R370 68k
R376 68k
R380 0
C363 0.01 B
C367 470p B
C371 680p B
R389 220
R371 68k
C362 0.01 B
C368 470p B
C372 680p B
R377 68k
R381 0
R388 220
L355 4.7μH
L356 22μH
Q352 FP101
C382 6.8 16V
(C-14) Q352 SWITCHING DRIVER
④ REC/PB
L357 22μH
Q353 FP101
C379 6.8 16V
C383 6.8 16V
(D-14) Q353 SWITCHING DRIVER
⑥ REC/P
16

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.


12
13
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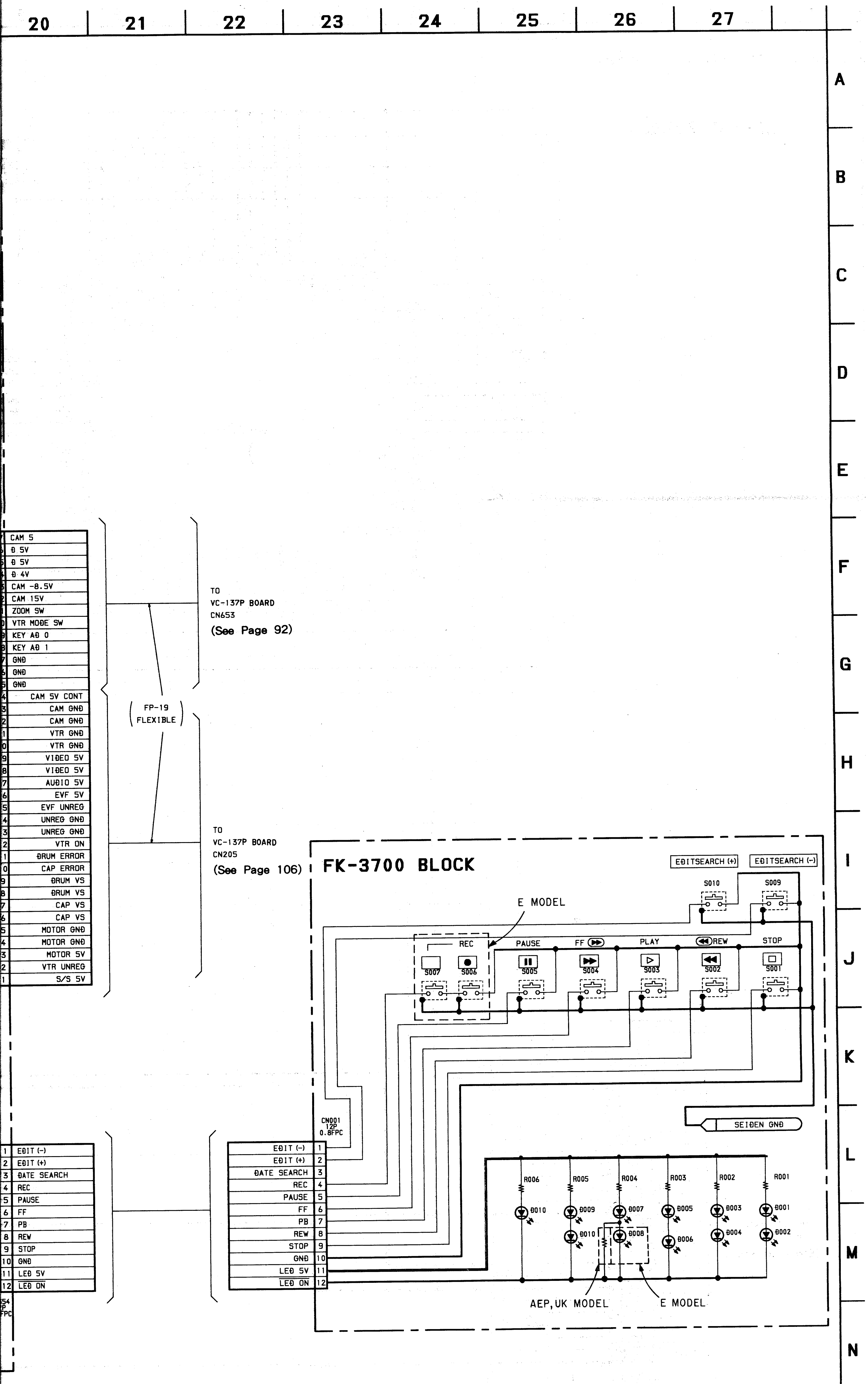
20
21
22
23
24
(C-14) Q355 SWITCHING DRIVER
Q355 FP102
L360 22μH
L363 2.2μH
L364 4.7μH
L365 4.7μH
C384 6.8 16V F
C391 10 6.3V :TA B
C392 10 6.3V :TA B
C395 10 6.3V :TA B
SL368
SL369
SL370
SL371
SL372
SL373
SL366
SL367
SL378
SL379
SL389
SL390
ZOOM
W
T
(TOP VIEW) RV301 100k
(C-11) Q360 EMERGENCY DETECT
Q360 UN9113
R398 3.9k
R399 47k
REC/PB Q354 C Pin
13.5Vp-p
2.16μs
C388 2.2 F
C389 25V :TA A
R395 22
L366 220μH
Q351 (C-13) MA796
L367 220μH
C390 1 25V :TA A
C385 2.2 F
SL356
SL357
SL358
SL359
(-8.4) (-9.5)
(D-13) Q358 CAM 5V SWITCH
Q358 2SJ244
L368 4.7μH
L369 4.7μH
L370 4.7μH
R396 100k
L361 22μH
Q356 FP102
C386 6.8 16V
SL360
SL361
SL364
SL365
SL374
SL375
C393 10 6.3V :TA B
C394 10 6.3V :TA B
C396 10 6.3V :TA B
C397 10 6.3V :TA B
R397 1k
SL362
SL363
L371 4.7μH
L362 33μH
Q357 FP101
C387 6.8 16V
Q359 2SB1581
R303 47k
Q361 2SA1832
Q362 XP4501
R301 22k :M
R302 22k :M
C302 0.01
R304 10k
R305 22k :M
R306 22k :M
C301 10 6.3V :TA B
SL382
(C-13) Q357 SWITCHING DRIVER
⑦ REC/PB Q357 4 Pin
8Vp-p
2.2μs
(C-2) (B-2) (B-16) Q359, Q361, Q362 MOTOR 5V REG.
SL381
PS351 CCP2E-20 0.8A
PS352 CCP2E-10 0.4A
SL384
SL383
SL392
SL385
SL386
④ REC/PB Q352 4 Pin
8Vp-p
2.16μs
SL387
SL388
SL391
③ REC/PB Q352 1 Pin
750mVp-p
2.16μs
⑥ REC/PB Q353 4 Pin
8Vp-p
2.16μs
⑤ REC/PB Q353 1 Pin
750mVp-p
2.16μs
W352 37P HOT.P
37 CAM 5
36 D 5V
35 D 5V
34 D 4V
33 CAM -8.5V
32 CAM 15V
31 ZOOM SW
30 VTR MODE SW
29 KEY AD 0
28 KEY AD 1
27 GND
26 GND
25 GND
24 CAM 5V CONT
23 CAM GND
22 CAM GND
21 VTR GND
20 VTR GND
19 VIDEO 5V
18 VIDEO 5V
17 AUDIO 5V
16 EVF 5V
15 EVF UNREG
14 UNREG GND
13 UNREG GND
12 VTR ON
11 DRUM ERROR
10 CAP ERROR
9 DRUM VS
8 DRUM VS
7 CAP VS
6 CAP VS
5 MOTOR GND
4 MOTOR GND
3 MOTOR 5V
2 VTR UNREG
1 S/S 5V
SL301
TO VC-137P BOARD CN653
(See Page 92)
FP-19 FLEXIBLE
TO VC-137P BOARD CN205
(See Page 106)
FK-3700 BLOCK
REC
S007
S006
R317 2200
R318 4700
R319 15k
R315 15k
R316 1200
R313 2200
R314 4700
R312 1200
R320 10k
R321 1000
(C-12) Q363 2SD2216
Q364 2SD1622 (B-12)
LED SWITCH
SL306
SL307
SL308
SL309
SL310
SL311
SL312
SL313
SL314
1 EDIT (-)
2 EDIT (+)
3 DATE SEARCH
4 REC
5 PAUSE
6 FF
7 PB
8 REW
9 STOP
10 GND
11 LED 5V
12 LED ON
CN354 12P 0.8FPC
CN001 12P 0.8FPC
EDIT (-) 1
EDIT (+) 2
DATE SEARCH 3
REC 4
PAUSE 5
FF 6
PB 7
REW 8
STOP 9
GND 10
LED 5V 11
LED ON 12


20
21
22
23
24
25
26
27
A
B
C
D
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G
H
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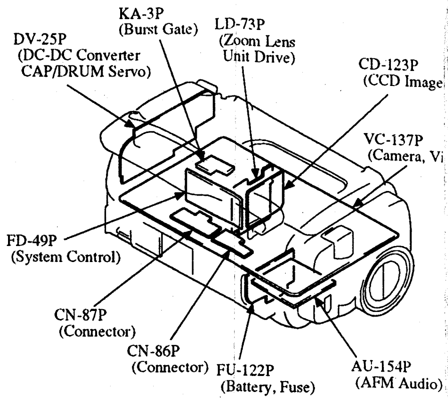
J
K
L
M
N
CAM 5
Ð 5V
Ð 5V
Ð 4V
CAM -8.5V
CAM 15V
ZOOM SW
VTR MOÐE SW
KEY AÐ 0
KEY AÐ 1
GNÐ
GNÐ
GNÐ
CAM 5V CONT
CAM GNÐ
CAM GNÐ
VTR GNÐ
VTR GNÐ
VIÐEO 5V
VIÐEO 5V
AUÐIO 5V
EVF 5V
EVF UNREG
UNREG GNÐ
UNREG GNÐ
VTR ON
ÐRUM ERROR
CAP ERROR
ÐRUM VS
ÐRUM VS
CAP VS
CAP VS
MOTOR GNÐ
MOTOR GNÐ
MOTOR 5V
VTR UNREG
S/S 5V
FP-19 FLEXIBLE
TO VC-137P BOARD CN653 (See Page 92)
TO VC-137P BOARD CN205 (See Page 106)
1 EÐIT (-)
2 EÐIT (+)
3 ÐATE SEARCH
4 REC
5 PAUSE
6 FF
7 PB
8 REW
9 STOP
10 GNÐ
11 LEÐ 5V
12 LEÐ ON
FK-3700 BLOCK
EÐITSEARCH (+)
EÐITSEARCH (-)
S010
S009
E MODEL
REC
PAUSE
FF
PLAY
REW
STOP
S007
S006
S005
S004
S003
S002
S001
SEIÐEN GNÐ
CN001 12P 0.8FPC
EÐIT (-) 1
EÐIT (+) 2
ÐATE SEARCH 3
REC 4
PAUSE 5
FF 6
PB 7
REW 8
STOP 9
GNÐ 10
LEÐ 5V 11
LEÐ ON 12
R006
R005
R004
R003
R002
R001
Ð010
Ð009
Ð007
Ð005
Ð003
Ð001
Ð010
Ð008
Ð006
Ð004
Ð002
AEP,UK MODEL
E MODEL

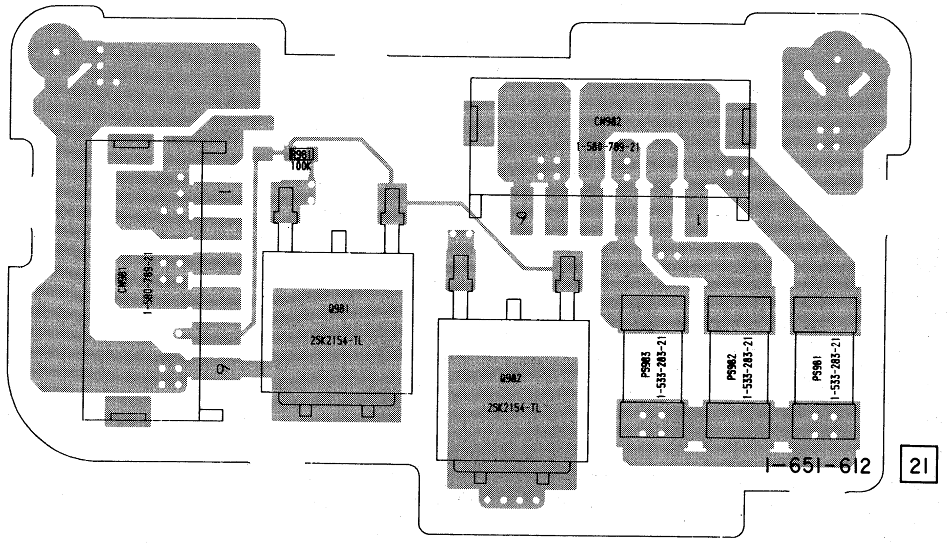
FU-122P (BATTERY, FUSE), DV-25P (DC-DC CONVERTER, CAP/DRUM SERVO) PRINTED WIRING BOARD

– Ref. No. FU-122P BOARD : 12,000 Series, DV-25P BOARD : 13,000 Series –

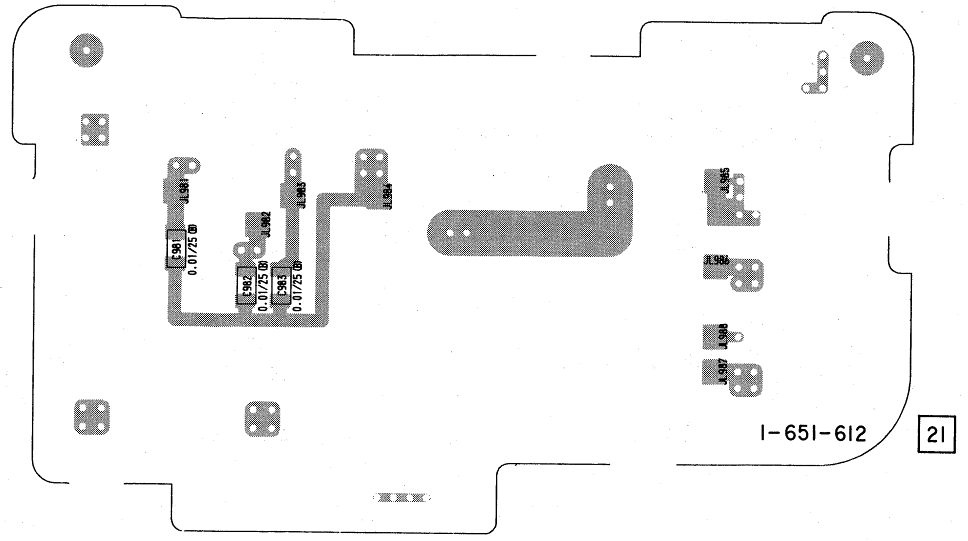
- FK-3700 BLOCK (TERMINAL BOARD) is replaced as blocks, so that there PRINTED WIRING BOARDS are omitted.


KA-3P (Burst Gate)
LD-73P (Zoom Lens Unit Drive)
DV-25P (DC-DC Converter CAP/DRUM Servo)
CD-123P (CCD Image
VC-137P (Camera, Vi
FD-49P (System Control)
CN-87P (Connector)
CN-86P (Connector)
FU-122P (Battery, Fuse)
AU-154P (AFM Audio)

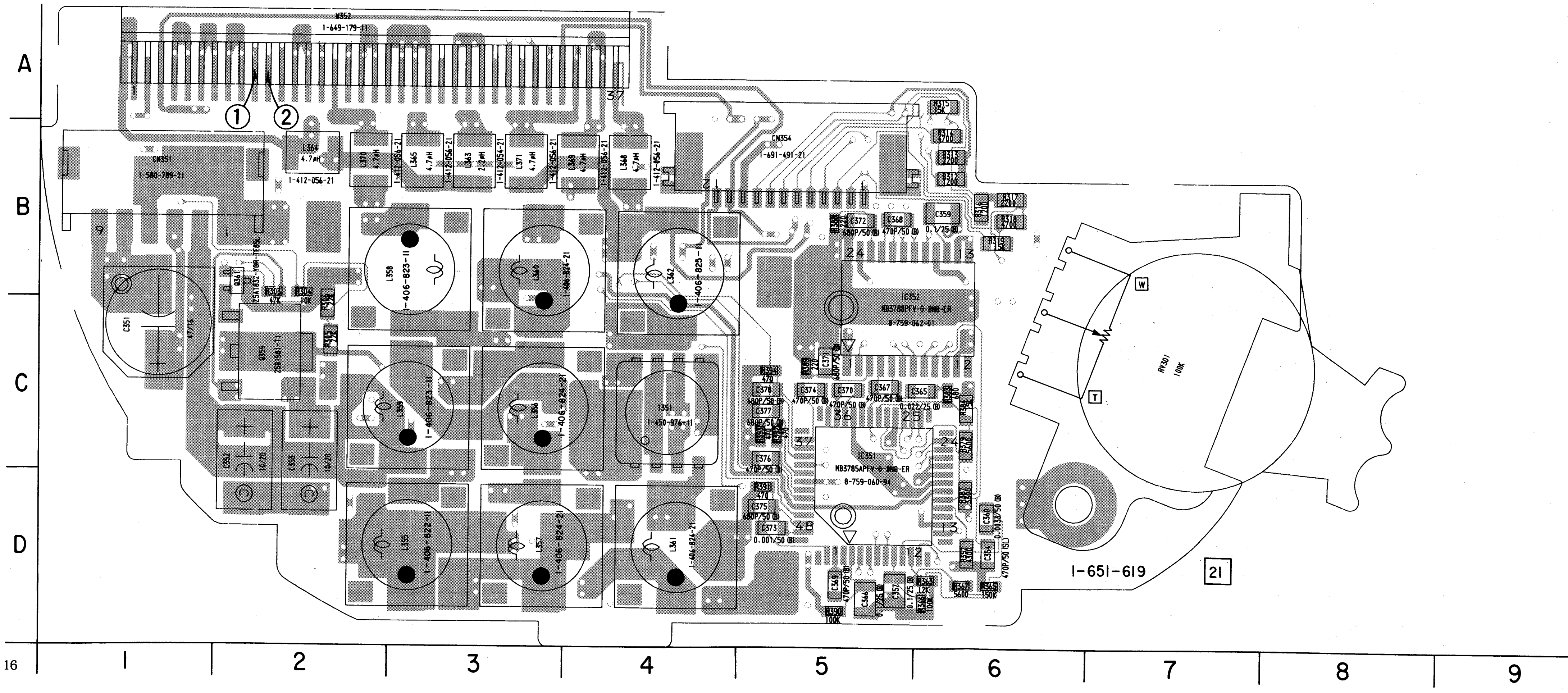
FU-122P BOARD – A SIDE –


CN982
1-580-789-21
CN981
1-580-789-21
R981
100K
Q981
2SK2154-TL
Q982
2SK2154-TL
PS983
1-533-283-21
PS982
1-533-283-21
PS981
1-533-283-21
1-651-612
21

FU-122P BOARD – B SIDE –


C981
0.01/25
JL981
JL982
JL983
JL984
JL985
JL986
JL987
JL988
1-651-612
21

DV-25P BOARD – A SIDE –


M352
1-649-179-11
CN351
1-580-789-21
①
②
37
CN354
1-691-491-21
L364 4.7μH
L370 4.7μH
L365 4.7μH
L366 4.7μH
L363 22μH
L371 4.7μH
L369 4.7μH
L368 4.7μH
1-412-056-21
C351
Q359
2SB1561-11
C352 10/20
C353 10/20
L358 1-406-823-11
L360 1-406-824-21
L362 1-406-825-11
L359 1-406-823-11
L356 1-406-824-21
T351 1-450-976-11
L355 1-406-822-11
L357 1-406-824-21
L361 1-406-824-21
IC352
MB3788PFV-G-BND-ER
8-759-062-01
IC351
MB3785APFV-G-BND-ER
8-759-060-94
C372
C368
C359
C374
C370
C367
C365
C378
C377
C376
C375
C373
C371
C349
C344
C357
C354
RV301
100K
W
T
1-651-619
21
A
B
C
D
1
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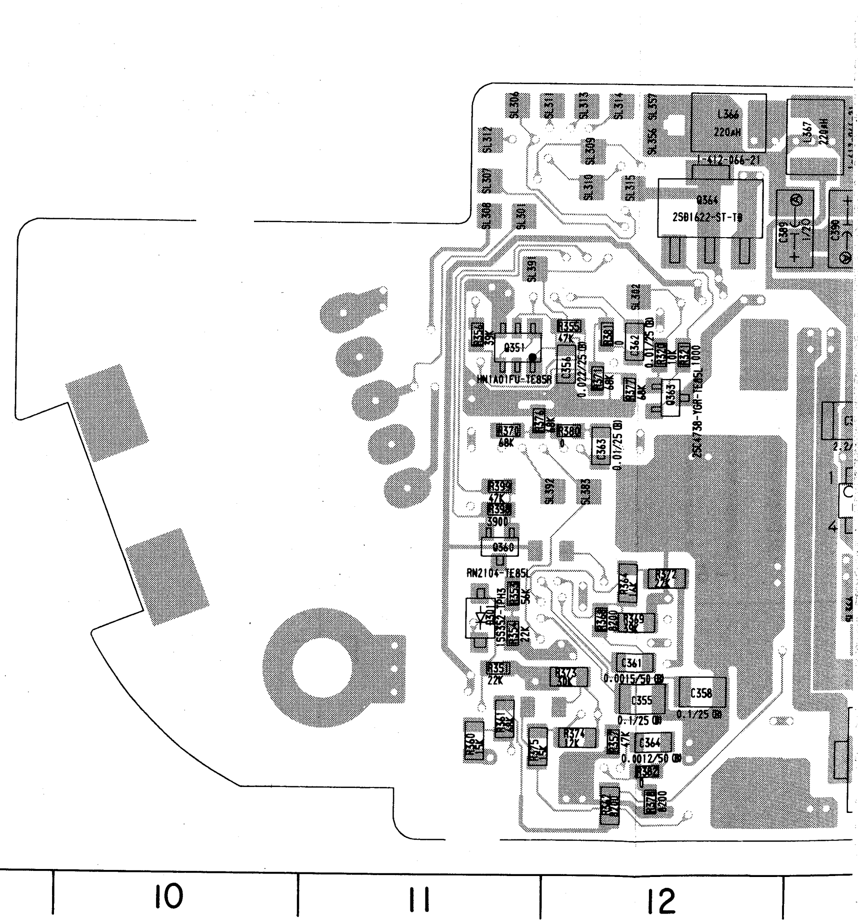
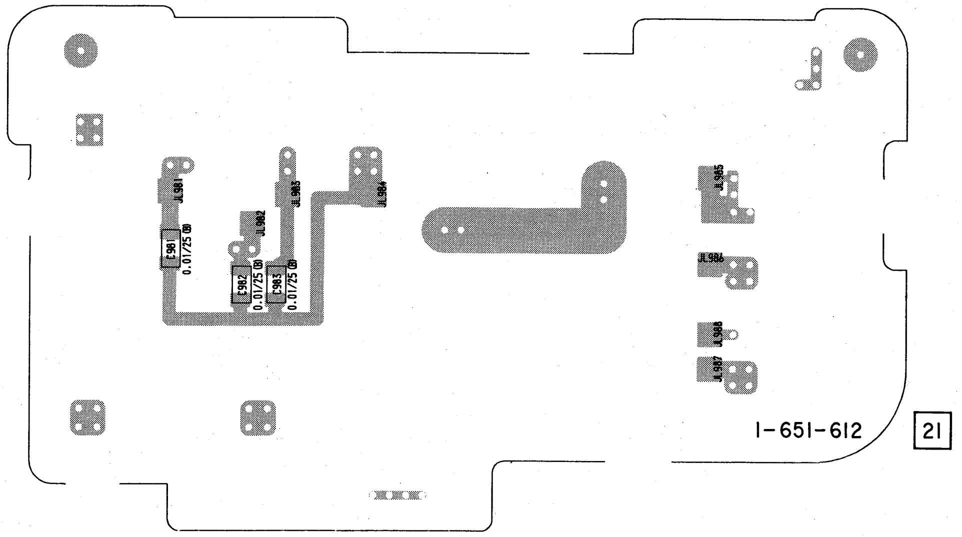
8

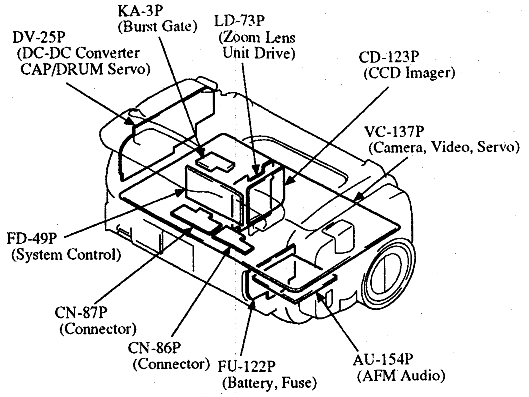
DV-25P BOARD – B SIDE –


L366 220μH
Q364
2SB1622-ST-TB
Q351
Q360
C358
C355
C361
9
10
11
12

NG BOARD

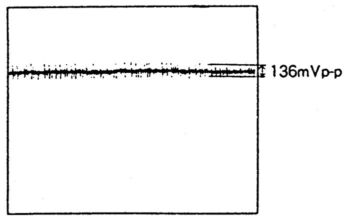
FU-122P BOARD – B SIDE –


JL981
C981 0.01/25 B
JL982
C982 0.01/25 B
JL983
C983 0.01/25 B
JL984
JL985
JL986
JL988
JL987
1-651-612
21

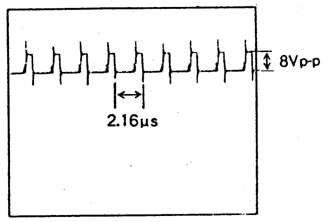

KA-3P (Burst Gate)
LD-73P (Zoom Lens Unit Drive)
DV-25P (DC-DC Converter CAP/DRUM Servo)
CD-123P (CCD Imager)
VC-137P (Camera, Video, Servo)
FD-49P (System Control)
CN-87P (Connector)
CN-86P (Connector)
FU-122P (Battery, Fuse)
AU-154P (AFM Audio)

DV-25P BOARD

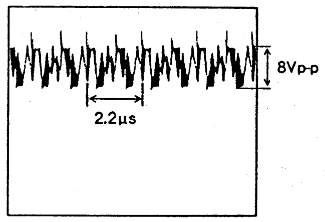
① PB W352 10 Pin



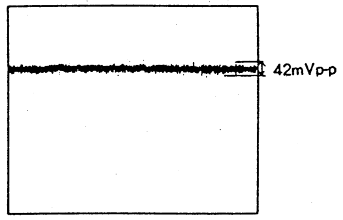
④ REC/PB Q352 4 Pin



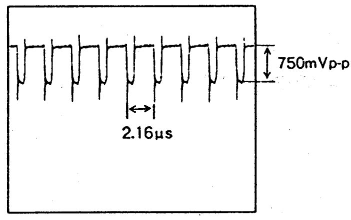
⑦ REC/PB Q357 4 Pin



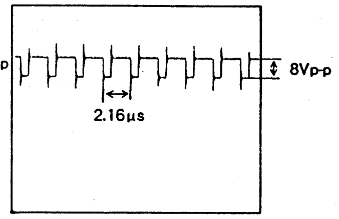
② REC/PB W352 11 Pin



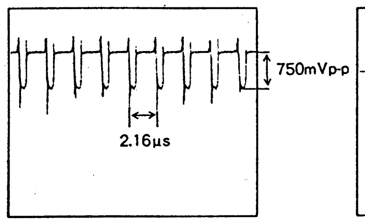
⑤ REC/PB Q353 1 Pin



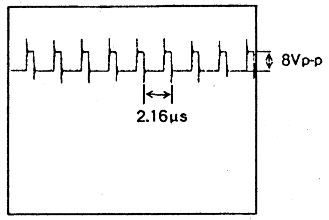
⑧ REC/PB Q356 4 Pin



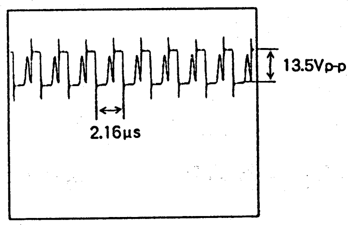
③ REC/PB Q352 1 Pin



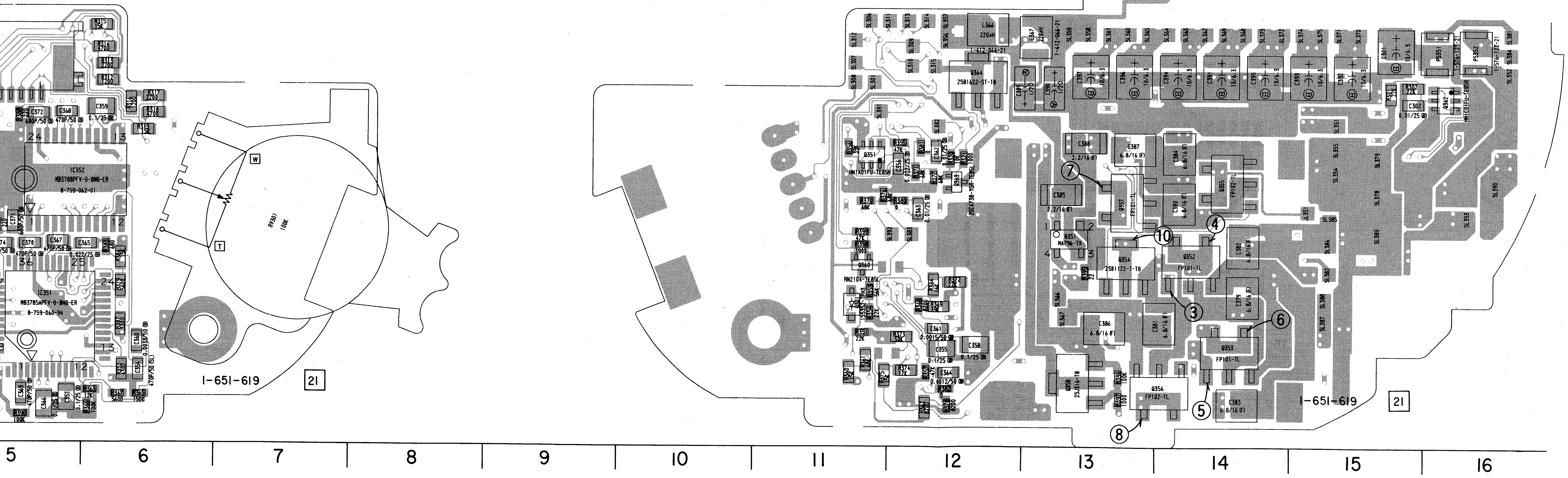
⑥ REC/PB Q353 4 Pin



⑩ REC/PB Q354 C Pin



DV-25P BOARD – B SIDE –


IC352
MB3788PFV-G-BND-ER
8-759-062-01
IC351
MB3785APFV-G-BND-ER
8-759-060-94
RV801
10K
W
T
1-651-619
21
L364
220μH
Q364
2SB1622-ST-TB
Q354
2SB1122-T-TB
Q352
FP101-TL
Q353
FP101-TL
Q356
FP102-TL
Q357
FP101-TL
Q355
FP102-TL
D351
MA736-TX
⑦
④
⑩
③
⑥
⑤
⑧
1-651-619
21
5
6
7
8
9
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11
12
13
14
15
16

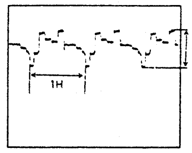
EZ-12P (EASY CONNECTOR CHARGING CONTROL), CN-86P (CONNECTOR) PRINTED WIRING BOARD

– Ref. No. EZ-12P BOARD : 14,000 Series, CN-86P BOARD : 15,000 Series –

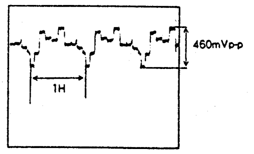
- JACK BLOCK (TERMINAL BOARD) is replaced as blocks, so that there PRINTED WIRING BOARDS are omitted.

EZ-12P BOARD

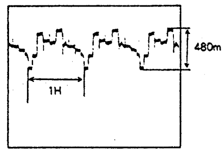
① PB W114 2 Pin



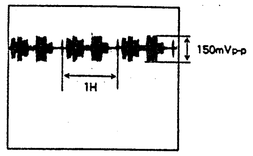
③ REC CN113 1 Pin



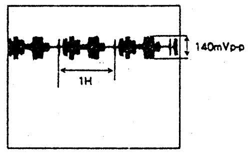
① REC W114 2 Pin



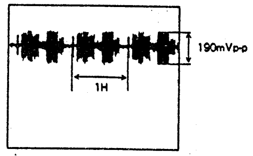
④ PB CN113 2 Pin



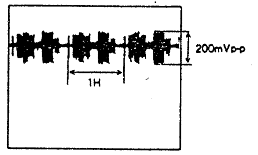
② PB W114 4 Pin



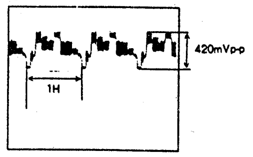
④ REC CN113 2 Pin



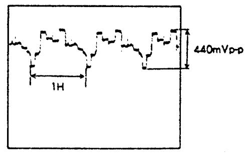
② REC W114 4 Pin



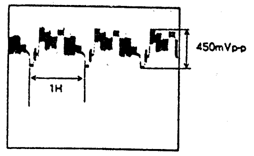
⑤ PB CN113 3 Pin

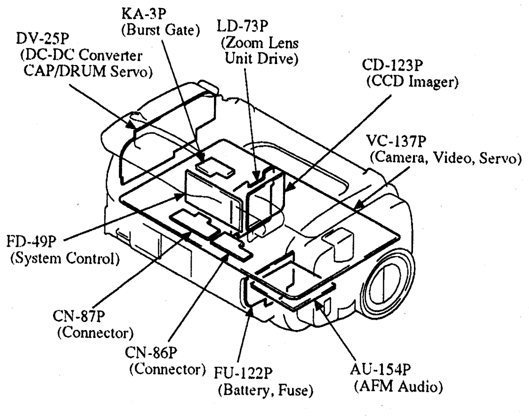


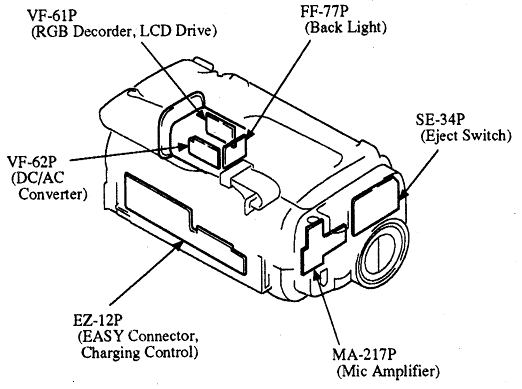
③ PB CN113 1 Pin



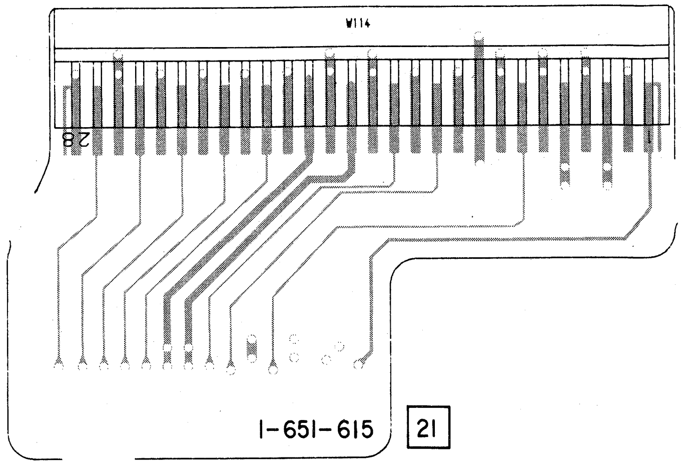
⑤ REC CN113 3 Pin



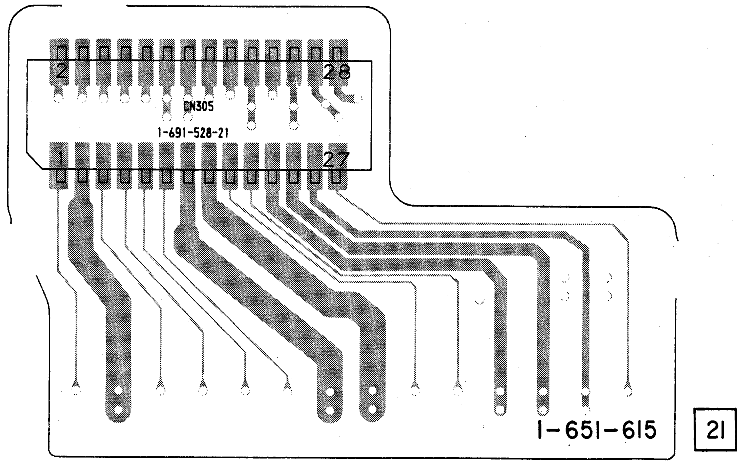

KA-3P (Burst Gate)
LD-73P (Zoom Lens Unit Drive)
DV-25P (DC-DC Converter CAP/DRUM Servo)
CD-123P (CCD Imager)
VC-137P (Camera, Video, Servo)
FD-49P (System Control)
CN-87P (Connector)
CN-86P (Connector)
FU-122P (Battery, Fuse)
AU-154P (AFM Audio)


VF-61P (RGB Decorder, LCD Drive)
FF-77P (Back Light)
SE-34P (Eject Switch)
VF-62P (DC/AC Converter)
EZ-12P (EASY Connector, Charging Control)
MA-217P (Mic Amplifier)

CN-86P BOARD – A SIDE –

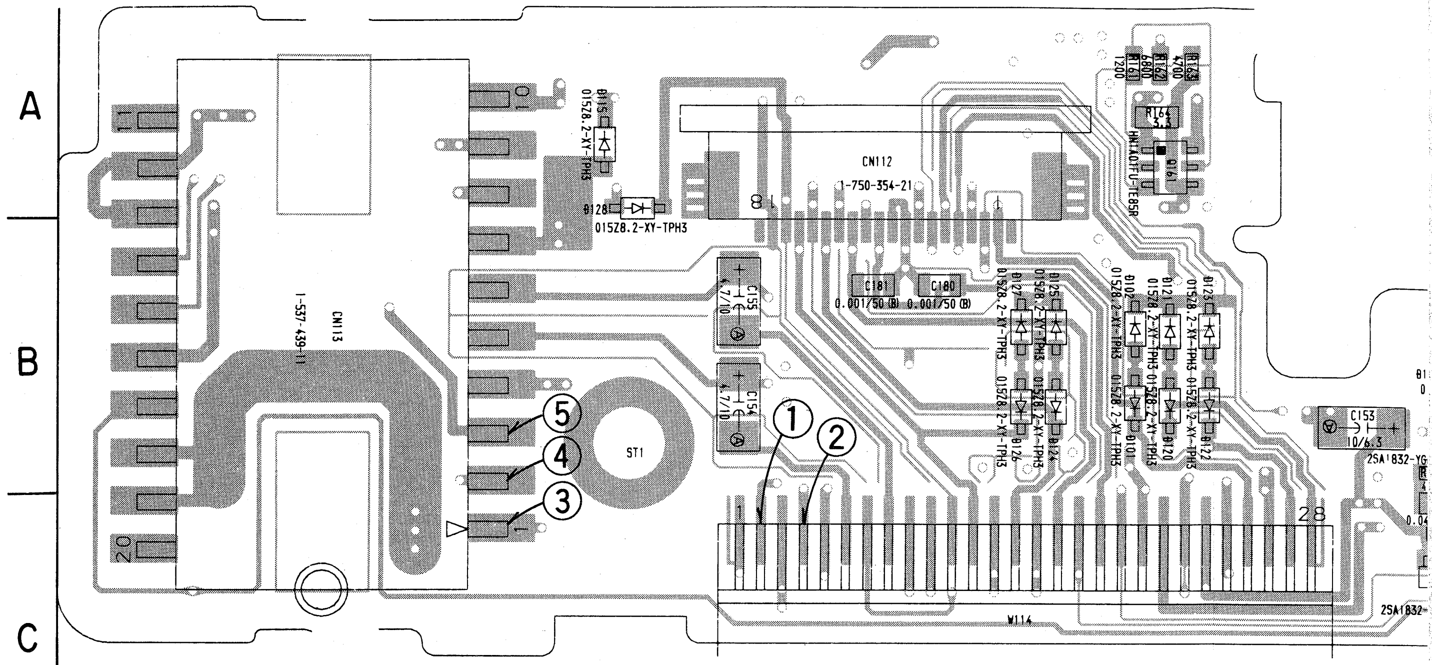

W114
28
1
1-651-615
21

CN-86P BOARD – B SIDE –

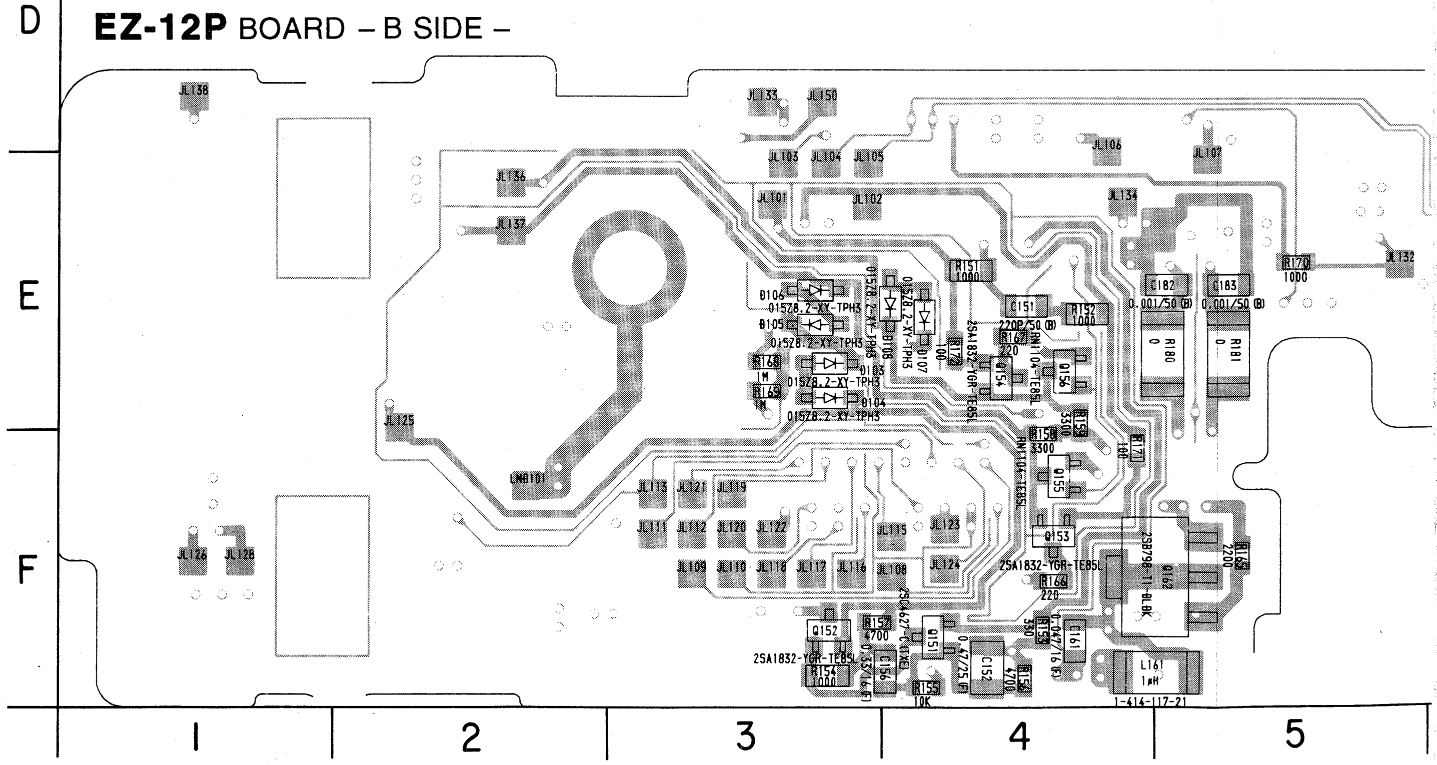

2
28
CN305
1-691-528-21
1
27
1-651-615
21

16

EZ-12P BOARD – A SIDE –


A
B
C
CN113
1-537-439-11
CN112
1-750-354-21
ST1
W114
C181 0.001/50
C180 0.001/50
C155 4.7/10
C154 4.7/10
C153 10/6.3
B115 01SZ8.2-XY-TPH3
B128 01SZ8.2-XY-TPH3
Q161
2SA1832-YG
①
②
③
④
⑤
1
28
20

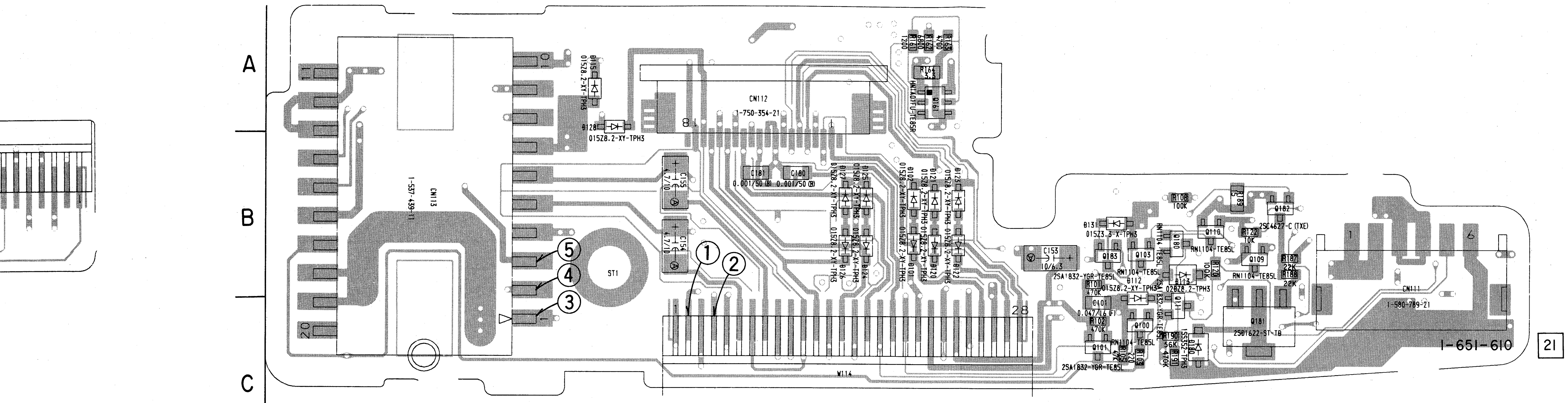
EZ-12P BOARD – B SIDE –


D
E
F
1
2
3
4
5
JL138
JL133
JL150
JL103
JL104
JL105
JL106
JL107
JL136
JL101
JL102
JL134
JL137
JL132
JL125
LNB101
C182 0.001/50
C183 0.001/50
R180 0
R181 0
C151 220P/50
Q154
Q156
Q155
Q153
Q152
Q151
Q162
L161 1μH
1-414-117-21
2SA1832-YGR-TE85L
2SB798-T1-DL

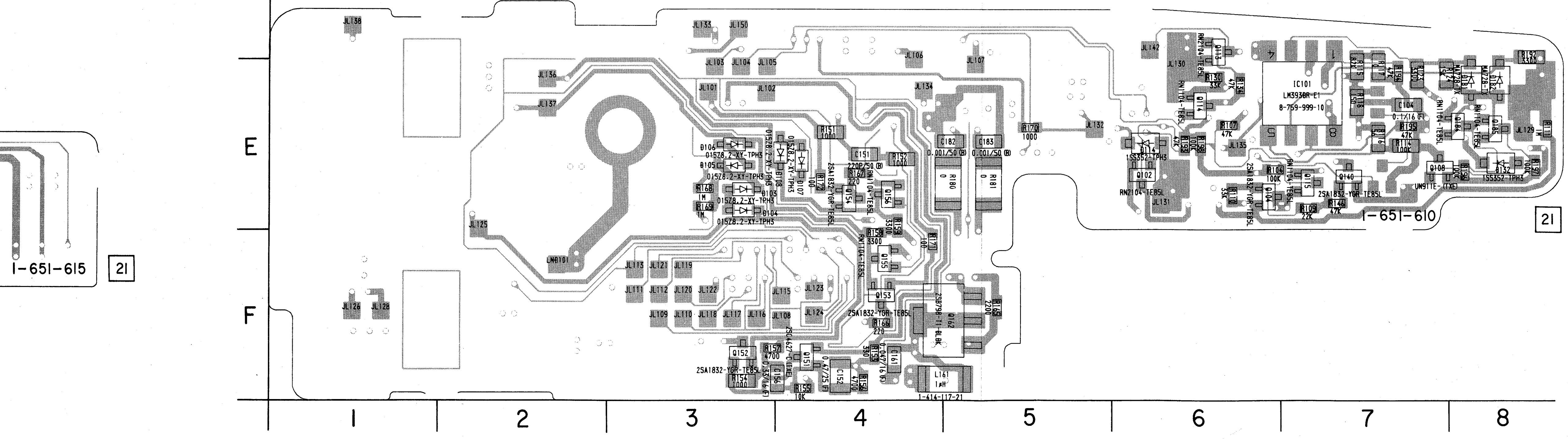
RD

- JACK BLOCK (TERMINAL BOARD) is replaced as blocks, so that there PRINTED WIRING BOARDS are omitted.

EZ-12P BOARD – A SIDE –

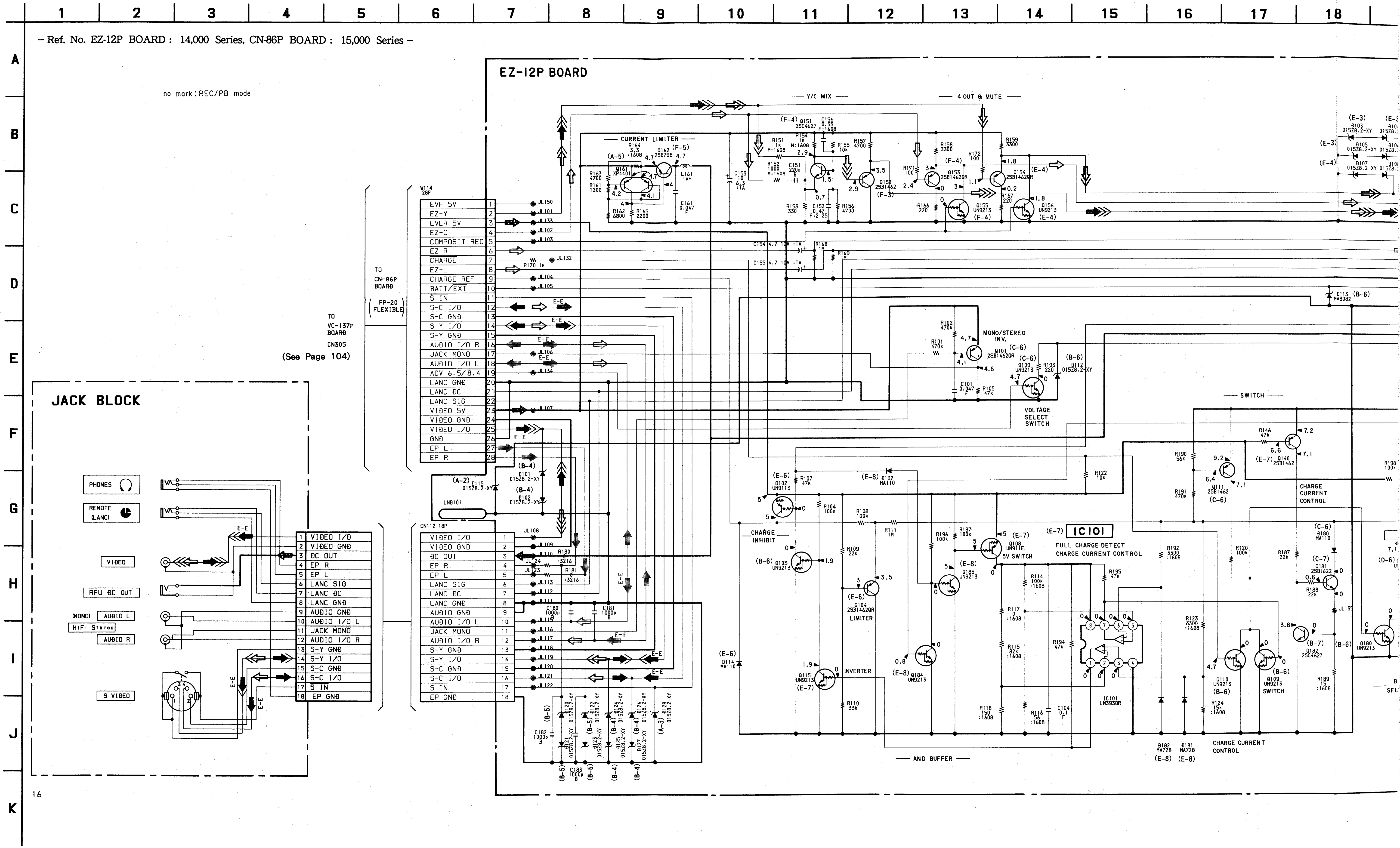

A
B
C
CN113
1-537-439-11
CN112
1-750-354-21
ST1
C181 0.001/50
C180 0.001/50
C153 10/6.3
Q181 2SD1622-ST-TB
CN111 1-580-789-21
1-651-610
21
W114
1
2
3
4
5
20
28

EZ-12P BOARD – B SIDE –


D
E
F
IC101 LM3930R-E1 8-759-999-10
C182 0.001/50
C183 0.001/50
R180 0
R181 0
L161 1μH 1-414-117-21
1-651-610
21
1-651-615
21
1
2
3
4
5
6
7
8

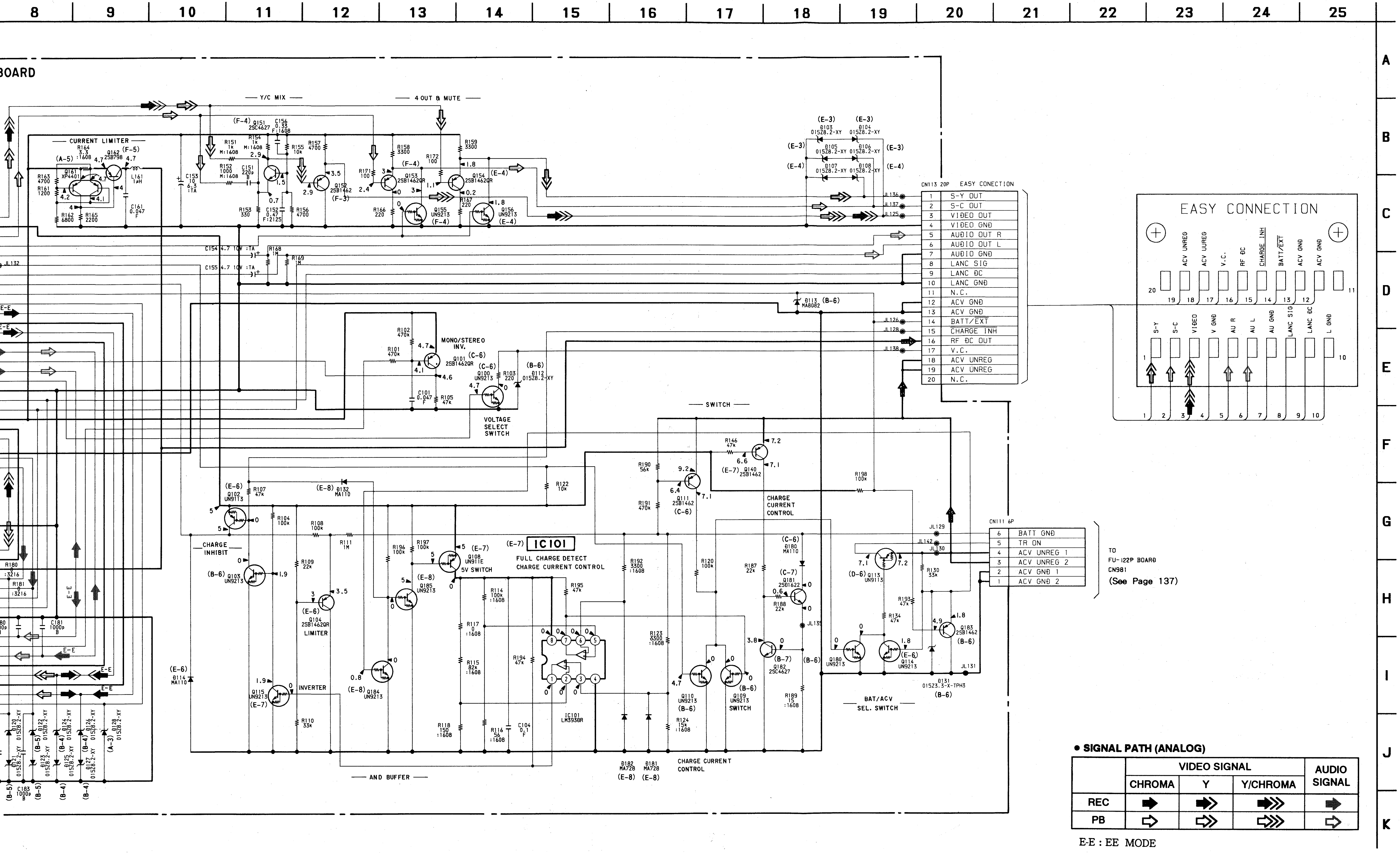
EZ-12P (EASY CONNECTOR CHARGING CONTROL), CN-86P (CONNECTOR), JACK BLOCK (VIDEO/AUDIO OUTPUT TERMINAL) SCHEMATIC DIAGRAM

– Ref. No. EZ-12P BOARD : 14,000 Series, CN-86P BOARD : 15,000 Series –



1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
A
B
C
D
E
F
G
H
I
J
K
no mark : REC/PB mode
EZ-12P BOARD
JACK BLOCK
PHONES
REMOTE (LANC)
VIDEO
RFU DC OUT
(MONO) AUDIO L
HIFI Stereo
AUDIO R
S VIDEO
TO VC-137P BOARD CN305
(See Page 104)
TO CN-86P BOARD
(FP-20 FLEXIBLE)
W114 28P
EVF 5V
EZ-Y
EVER 5V
EZ-C
COMPOSIT REC
EZ-R
CHARGE
EZ-L
CHARGE REF
BATT/EXT
S IN
S-C I/O
S-C GND
S-Y I/O
S-Y GND
AUDIO I/O R
JACK MONO
AUDIO I/O L
ACV 6.5/8.4
LANC GND
LANC DC
LANC SIG
VIDEO 5V
VIDEO GND
VIDEO I/O
GND
EP L
EP R
CN112 18P
VIDEO I/O
VIDEO GND
DC OUT
EP R
EP L
LANC SIG
LANC DC
LANC GND
AUDIO GND
AUDIO I/O L
JACK MONO
AUDIO I/O R
S-Y GND
S-Y I/O
S-C GND
S-C I/O
S IN
EP GND
LND101
E-E
CURRENT LIMITER
Q161 XP4401
Q162 2SB798
L161 1µH
Y/C MIX
4 OUT & MUTE
Q151 2SC4627
Q152 2SB1462
Q153 2SB1462QR
Q154 2SB1462QR
Q155 UN9213
Q156 UN9213
MONO/STEREO INV.
Q101 2SB1462QR
Q100 UN9213
D112 01SZ8.2-XY
VOLTAGE SELECT SWITCH
D113 MA8082
SWITCH
Q140 2SB1462
Q111 2SB1462
CHARGE CURRENT CONTROL
CHARGE INHIBIT
Q102 UN9213
Q103 UN9213
D132 MA110
Q104 2SB1462QR
LIMITER
D114 MA110
Q115 UN9213
INVERTER
Q184 UN9213
Q185 UN9213
Q108 UN911E
5V SWITCH
IC101
FULL CHARGE DETECT
CHARGE CURRENT CONTROL
IC101 LM393GR
AND BUFFER
D182 MA728
D181 MA728
Q110 UN9213
Q109 UN9213
SWITCH
Q180 MA110
Q181 2SB1622
Q182 2SC4627
Q180 UN9213
D101 01SZ8.2-XY
D102 01SZ8.2-XY
D115 01SZ8.2-XY
D120 01SZ8.2-XY
D121 01SZ8.2-XY
D122 01SZ8.2-XY
D123 01SZ8.2-XY
D124 01SZ8.2-XY
D125 01SZ8.2-XY
D126 01SZ8.2-XY
D127 01SZ8.2-XY
D128 01SZ8.2-XY
D103 01SZ8.2-XY
D105 01SZ8.2-XY
D107 01SZ8.2-XY
16

(VIDEO/AUDIO OUTPUT TERMINAL) SCHEMATIC DIAGRAM


8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
A
B
C
D
E
F
G
H
I
J
K
BOARD
Y/C MIX
4 OUT & MUTE
CURRENT LIMITER
Q161 XP4401
Q162 2SB798
Q151 2SC4627
Q152 2SB1462
Q153 2SB1462QR
Q154 2SB1462QR
Q155 UN9213
Q156 UN9213
MONO/STEREO INV.
Q101 2SB1462QR
Q100 UN9213
D112 01SZ8.2-XY
VOLTAGE SELECT SWITCH
CN113 20P EASY CONECTION
1 S-Y OUT
2 S-C OUT
3 VIDEO OUT
4 VIDEO GND
5 AUDIO OUT R
6 AUDIO OUT L
7 AUDIO GND
8 LANC SIG
9 LANC DC
10 LANC GND
11 N.C.
12 ACV GND
13 ACV GND
14 BATT/EXT
15 CHARGE INH
16 RF DC OUT
17 V.C.
18 ACV UNREG
19 ACV UNREG
20 N.C.
D113 MA8082
EASY CONNECTION
ACV UNREG
ACV UUREG
V.C.
RF DC
CHARGE INH
BATT/EXT
ACV GND
ACV GND
S-Y
S-C
VIDEO
V GND
AU R
AU L
AU GND
LANC SIG
LANC DC
L GND
SWITCH
Q140 2SB1462
Q111 2SB1462
CHARGE CURRENT CONTROL
CHARGE INHIBIT
Q102 UN9113
Q105 UN9213
D132 MA110
Q108 UN9113E
5V SWITCH
IC101
FULL CHARGE DETECT CHARGE CURRENT CONTROL
IC101 LM3930R
Q185 UN9213
Q104 2SB1462QR
LIMITER
Q115 UN9213
INVERTER
Q184 UN9213
AND BUFFER
D114 MA110
D180 MA110
Q181 2SD1622
Q182 2SC4627
Q110 UN9213
Q109 UN9213
SWITCH
D182 MA728
D181 MA728
CHARGE CURRENT CONTROL
Q113 UN9113
Q180 UN9213
Q114 UN9213
Q183 2SB1462
D131 01SZ3.3-X-TPH3
BAT/ACV SEL. SWITCH
CN111 6P
6 BATT GND
5 TR ON
4 ACV UNREG 1
3 ACV UNREG 2
2 ACV GND 1
1 ACV GND 2
TO FU-122P BOARD CN981
(See Page 137)
E-E

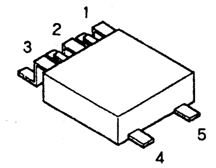
• **SIGNAL PATH (ANALOG)**

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡➡	➡➡➡	➡
PB	⇨	⇨⇨	⇨⇨⇨	⇨

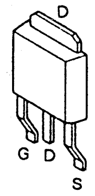
E-E : EE MODE

4-3. SEMICONDUCTOR LEAD LAYOUTS

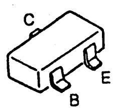
FP101
FP102



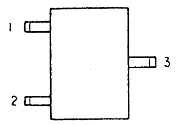
MTD9N10E
2SK2154



UN9111
UN911E
UN9210-QRS
UN9211
UN9213
UN921K
2SA1611-M5M6
2SA1865
2SB1295-UL6
2SB1462
2SC1623-L5L6
2SC2223-F13
2SC4627-C
2SC4919
2SC4922

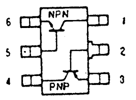


UN9113
2SD2216Q

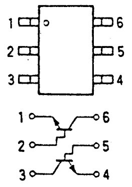


1 : Base
2 : Emitter
3 : Collector

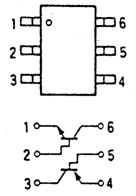
XN4601


NPN
PNP
6
5
4
1
2
3

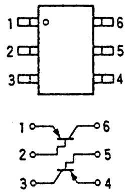
XP4213



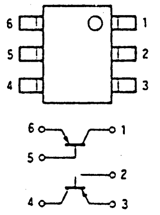
XP4312
XP4601



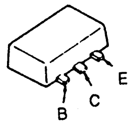
XP4401



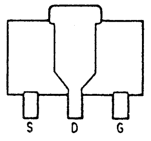
XP4501



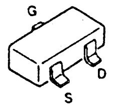
2SB1115A-YQ
2SB1581
2SB798-DL
2SD1622-S



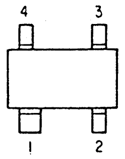
2SJ244JY



2SK1875

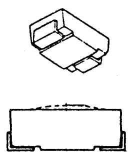


3SK248



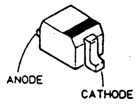
1 : Source
2 : Gate1
3 : Gate2
4 : Drain

LN1251C

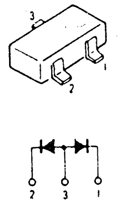


cathode —⊳|— anode

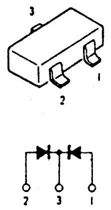
MA110
MA365
MA728
1T33C-01


ANODE
CATHODE

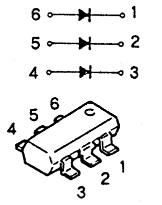
MA132WA



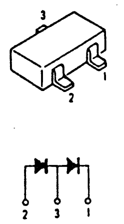
MA132WK



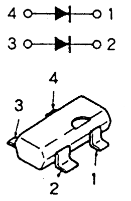
MA6S121-(TX)


6
1
5
2
4
3
4
5
6
2
1
3

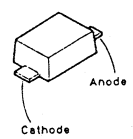
MA740



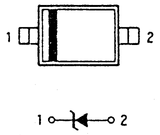
MA796



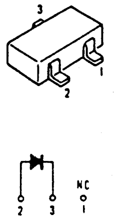
MA8082-M


Anode
Cathode

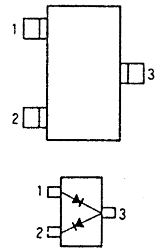
015Z3.3-X-TPH3
015Z8.2-XY-TPH



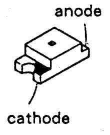
1SS250



1SS302



BR1102W


anode
cathode

4-4. IC DESCRIPTION

INTERFACE
System Control-Video and Audio Block Interface (VC-137P Board)

Signal Name	I/O	Pin No.	VTR Mode															CAMERA Mode					
			STOP	FF	REW	FR SEARCH		PB	PICTURE SEARCH		PB·PAUSE	FRAME	SLOW	SHUTTLE EDIT *14		REC *16	REC *16 PAUSE	STAND BY	REC	EDIT SEARCH		REC REVIEW	
						CUE	REVIEW		CUE	REVIEW				FWD	REV					FWD	RVS	FWD	RVS
SP/$\overline{\text{LP}}$	O	IC201 ㉗	*1	H	H	*2	*2	*2	*2	*2	*1	*1	*1	*2	*2	*17	H/L	H/L	*17	*2	*2	H	H
VA PB	O	IC201 (72)	L	L	L	H	H	H	H	H	H	H	H	H	H	L	L	L	L	H	H	H	H
AUDIO MUTE *13	O	IC201 ㊼	H	H	H	H	H	L	H	H	H	H	H	H	H	L	L	L	L	H	H	L	H
VIDEO MUTE	O	IC201 ⑳	H	H	H	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*3	*3	L	L	*4	*4	*4	*4
CAM/$\overline{\text{LINE}}$	O	IC201 ㉖	H	H	H	H	H	H	H	H	H	H	H	H	H	L	L	H	H	H	H	H	H
JOG VD	O	IC201 ③	L	L	L	*5	*5	L	*5	*5	*5	*5	*5	L	*5	L	L	L	L	L	*5	L	*5
RP PB	O	IC201 ①	H	H	H	H	H	H	H	H	H	H	H	H	H	L	H	H	L	H	H	H	H
$\overline{\text{FE ON}}$	O	IC201 ②	H	H	H	H	H	H	H	H	H	H	H	H	H	L	H	H	L	H	H	H	H
$\overline{\text{1/2 RF SWP}}$	O	IC201 (98)	H	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6
RF SWP	O	IC201 (97)	L	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7
$\overline{\text{MUTE 2B}}$	O	IC201 (89)	L	*8	*8	*8	*8	*8	*8	*8	*8	*8	*8	*8	*8	*8	*8	*8	*8	*8	*8	*8	*8
$\overline{\text{MUTE 1B}}$	O	IC201 (90)																					
$\overline{\text{MUTE 2A}}$	O	IC201 (91)																					
$\overline{\text{MUTE 1A}}$	O	IC201 (92)																					
JOG	O	IC201 ④	L	L	L	H	H	L	H	H	H	H	H	L	H	L	L	L	L	L	H	L	H
L AUDIO OUT/IN	O	IC201 ㊾	*15	*15	*15	*15	*15	*15	*15	*15	*15	*15	*15	*15	*15	L	L	H	H	*15	*15	*15	*15

4-4. IC DESCRIPTION

INTERFACE
System Control-Video and Audio Block Interface (VC-137P Board)

Signal Name	I/O	Pin No.	VTR Mode															CAMERA Mode					
			STOP	FF	REW	FR SEARCH		PB	PICTURE SEARCH		PB·PAUSE	FRAME	SLOW	SHUTTLE EDIT *14		REC *16	REC *16 PAUSE	STAND BY	REC	EDIT SEARCH		REC REVIEW	
						CUE	REVIEW		CUE	REVIEW				FWD	REV					FWD	RVS	FWD	RVS
SP/$\overline{\text{LP}}$	O	IC201 ㉗	*1	H	H	*2	*2	*2	*2	*2	*1	*1	*1	*2	*2	*17	H/L	H/L	*17	*2	*2	H	H
VA PB	O	IC201 (72)	L	L	L	H	H	H	H	H	H	H	H	H	H	L	L	L	L	H	H	H	H
AUDIO MUTE *13	O	IC201 ㊼	H	H	H	H	H	L	H	H	H	H	H	H	H	L	L	L	L	H	H	L	H
VIDEO MUTE	O	IC201 ⑳	H	H	H	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*3	*3	L	L	*4	*4	*4	*4
CAM/$\overline{\text{LINE}}$	O	IC201 ㉖	H	H	H	H	H	H	H	H	H	H	H	H	H	L	L	H	H	H	H	H	H
JOG VD	O	IC201 ③	L	L	L	*5	*5	L	*5	*5	*5	*5	*5	L	*5	L	L	L	L	L	*5	L	*5
RP PB	O	IC201 ①	H	H	H	H	H	H	H	H	H	H	H	H	H	L	H	H	L	H	H	H	H
$\overline{\text{FE ON}}$	O	IC201 ②	H	H	H	H	H	H	H	H	H	H	H	H	H	L	H	H	L	H	H	H	H
$\overline{\text{1/2 RF SWP}}$	O	IC201 (98)	H	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6
RF SWP	O	IC201 (97)	L	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7
$\overline{\text{MUTE 2B}}$	O	IC201 (89)	L	*8	*8	*8	*8	*8	*8	*8	*8	*8	*8	*8	*8	*8	*8	*8	*8	*8	*8	*8	*8
$\overline{\text{MUTE 1B}}$	O	IC201 (90)																					
$\overline{\text{MUTE 2A}}$	O	IC201 (91)																					
$\overline{\text{MUTE 1A}}$	O	IC201 (92)																					
JOG	O	IC201 ④	L	L	L	H	H	L	H	H	H	H	H	L	H	L	L	L	L	L	H	L	H
L AUDIO OUT/IN	O	IC201 ㊾	*15	*15	*15	*15	*15	*15	*15	*15	*15	*15	*15	*15	*15	L	L	H	H	*15	*15	*15	*15

Signal Name	I/O	Pin No.	VTR Mode															CAMERA Mode					
			STOP	FF	REW	FR SEARCH		PB	PICTURE SEARCH		PB·PAUSE	FRAME	SLOW	SHUTTLE EDIT *14		REC *16	REC *16 PAUSE	STAND BY	REC	EDIT SEARCH		REC REVIEW	
						CUE	REVIEW		CUE	REVIEW				FWD	REV					FWD	RVS	FWD	RVS
$\overline{\text{REC2B}}$	O	IC201 (93)	H	H	H	H	H	H	H	H	H	H	H	H	H	*9	H	H	*9	H	H	H	H
$\overline{\text{REC1B}}$	O	IC201 (94)																					
$\overline{\text{REC2A}}$	O	IC201 (95)																					
$\overline{\text{REC1A}}$	O	IC201 (96)																					
SP/$\overline{\text{LP}}$ DET	I	IC201 (65)	L	*10	*10	*10	*10	L	*10	*10	*10			L	*10	H	H	H	H	L	*10	L	*10
CLOG	I	IC201 (82)	H	*11	*11	*11	*11	*11	*11	*11	*11	*11	*11	*11	*11	H	*11	*11	H	*11	*11	*11	*11
VTR SYNC	I	IC201 (64)	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12

*1. Outputs the discrimination results of the mode just before. SP mode: "H", LP mode: "L".
*2. Outputs the discrimination results of the recording mode of the tape played back. SP mode: "H", LP mode: "L".
*3. "L" when the external input (video) is present. "H" when at other times.
*4. "H" when there are no signals on the tape. "L" at other times.
*5. False VD signal.
*6. 12.5 Hz duty 50% pulse (synchronizes with the rotation of the drum).
*7. 25 Hz duty 50% pulse (synchronizes with the rotation of the drum).
*8. Refer to Time Chart 1.
*9. Refer to Time Chart 2.
*10. "H" at SP recorded section of the tape, "L" at LP recorded section.
*11. "H" at unrecorded section or drop-out section. Head clog detection input.
*12. Composite sync signal input separated from the line input video signal, camera video signal or playback video signal. (Polarity +)
*13. "H" during load/unload of CAMERA mode.
*14. Condition where edit search is pressed during the pause of a playback.
*15. "H" when playing back with no signals and with the data screen off.
*16. Mode for adjustment.
*17. Set by REC MODE switch of menu screen. "H": SP mode, "L": LP mode.

System Control-Servo Block Interface (VC-137P Board)

Signal Name	I/O	Pin No.	VTR Mode															CAMERA Mode					
			STOP	FF	REW	FR SEARCH		PB	PICTURE SEARCH		PB·PAUSE	FRAME	SLOW	SHUTTLE EDIT *13		REC *14	REC *14 PAUSE	STAND BY	REC	EDIT SEARCH		REC REVIEW	
						CUE	REVIEW		CUE	REVIEW				FWD	REV					FWD	RVS	FWD	RVS
T.REEL FG	I	IC201 (60)	–	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	–	–	*1	*1	*1	*1	*1
S.REEL FG	I	IC201 (59)	–	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	–	–	*1	*1	*1	*1	*1
ATF ERROR	I	IC201 (58)	–	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2
DRUM PG	I	IC201 (66)	–	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3
DRUM FG	I	IC201 (67)	–	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4
CAP FG/ CFG HMS	I	IC201 (68), (75)	–	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5
CAP ON	O	IC201 (99)	L	H	H	H	H	H	H	H	L	*8	*8	H	H	H	L	L	H	H	H	H	H
REF PILOT	O	IC201 (83)	*7	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6
RP PB	O	IC201 ①	H	H	H	H	H	H	H	H	H	H	H	H	H	L	H	H	L	H	H	H	H
DRUM FWD/$\overline{\text{RVS}}$ *10	O	IC201 ㉝	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
CAP FWD/ $\overline{\text{RVS}}$	O	IC201 (100)	L	H	L	H	L	H	H	L	L	*8	*8	H	L	H	L	L	H	H	L	H	L
DRUM PWM	O	IC201 (74)	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9
CAP PWM	O	IC201 (73)	L	*9	*9	*9	*9	*9	*9	*9	L	*9	*9	*9	*9	*9	L	L	*9	*9	*9	*9	*9
LM LIM CONT *11	O	IC201 ㉛	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
DRUM ON *12	O	IC201 ㉜	L	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H

*1. A pulse whose amplitude has been modulated by the rotation of the reel (5.5 msec. cycle) is input. (The amplitude modulation cycle is approx. 1 sec. during REC/PB.)

*2. ATF error voltage input.

*3. One PG pulse is input with one drum rotation. Approx. 37.5 Hz.

*4. Six FG pulses are input with one drum rotation. Approx. 225 Hz.

*5. 360 FG pulses are input with one capstan rotation. Approx. 1145.5 Hz during REC/PB (SP).

*6. Outputs four frequencies synchronized with the rotation of the drum. f_1=101.0 kHz, f_2=117.2 kHz, f_3=162.8 kHz, f_4=146.5 kHz.

*7. Outputs f_2 (117.2 kHz).

*8. "H" pulse when the tape is run.

*9. 21.5 µsec. cycle PWM signal.

*10. Normally "H". Temporarily "L" only during load/unload (drum reversal).

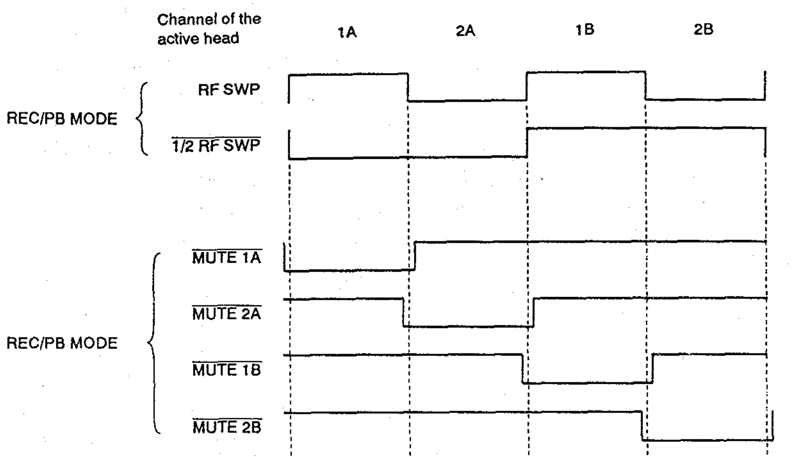
*11. Temporarily "H" only during cassette loading (To prevent your finger from being caught).

*12. H level is approx. 1.3 Vdc.

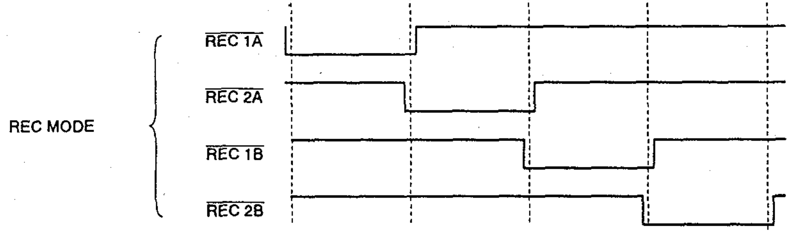
*13. Condition where edit search is pressed during the pause of a playback.

*14. Mode for adjustment.

Timing Chart 1



Timing Chart 2



MECHANISM CONTROL MICRO PROCESSOR (VC-137P BOARD IC201:CXP80624) PIN FUNCTIONS

<table>
<tr><th>Pin No.</th><th>Signal Name</th><th>I/O</th><th>Function</th></tr>
<tr><td>1</td><td>RP PB</td><td>O</td><td>REC/PB switching signal of REC/PB amplifier (VC-137P board IC001)and ATF servo IC (VC-137P board IC202). "H": PB.</td></tr>
<tr><td>2</td><td>$\overline{\text{FE ON}}$</td><td>O</td><td>Flying erase oscillation on/off control signal. "L": Oscillation.</td></tr>
<tr><td>3</td><td>JOG VD</td><td>O</td><td>False VD signal inserted in playback video signal during variable speed playback.</td></tr>
<tr><td>4</td><td>JOG</td><td>O</td><td>Variable speed playback/normal playback switching signal of video circuit. "H": Variable speed playback.</td></tr>
<tr><td>5</td><td>$\overline{\text{MIC MONO}}$</td><td>I</td><td>External microphone monaural/stereo discrimination input. "L": When monaural microphone is used.</td></tr>
<tr><td>6</td><td>PB 1.7M DET</td><td>I</td><td>AFM stereo tape/monaural tape discrimination input. "H": During stereo or bilingual tape playback.</td></tr>
<tr><td>7</td><td>JACK MONO</td><td>I</td><td>Monaural/stereo discrimination input of audio input/output terminal. "L": When jack is inserted in right channel terminal.</td></tr>
<tr><td>8</td><td>INT VD</td><td>O</td><td>Internal VD signal.</td></tr>
<tr><td>9</td><td>PBV</td><td>O</td><td>System synchronizing signal which becomes reference for character generator, communication, LANC synchronization. When CAM: Locks to CAM VD (Pin (62)). When VTR: Locks to VTR SYNC (Pin (64)).</td></tr>
<tr><td>10</td><td>NC</td><td></td><td rowspan="3">Not used (open).</td></tr>
<tr><td>11</td><td>NC</td><td></td></tr>
<tr><td>12</td><td>NC</td><td></td></tr>
<tr><td>13</td><td>MODE SW C</td><td>I</td><td rowspan="3">Mode switch input.
<table>
<tr><th></th><th>EJECT</th><th>USE</th><th>LS</th><th>GL</th><th>REC/PB</th><th>READY</th></tr>
<tr><td>MODE SW A</td><td>L</td><td>H</td><td>L</td><td>L</td><td>H</td><td>H</td></tr>
<tr><td>MODE SW B</td><td>L</td><td>H</td><td>H</td><td>H</td><td>L</td><td>L</td></tr>
<tr><td>MODE SW C</td><td>H</td><td>L</td><td>H</td><td>L</td><td>H</td><td>L</td></tr>
</table></td></tr>
<tr><td>14</td><td>MODE SW B</td><td>I</td></tr>
<tr><td>15</td><td>MODE SW A</td><td>I</td></tr>
<tr><td>16</td><td>NC</td><td></td><td>Not used (open).</td></tr>
<tr><td>17</td><td>$\overline{\text{REC PROOF SW}}$</td><td>I</td><td>Recording-proof switch input. "H": REC prohibition.</td></tr>
<tr><td>18</td><td>ME/$\overline{\text{MP}}$ SW</td><td>I</td><td>ME/$\overline{\text{MP}}$ switch input. "L": MP, "H": ME.</td></tr>
<tr><td>19</td><td>E/$\overline{\text{L}}$ DET</td><td>I</td><td>Normal/Hi8 discrimination input. "H": When section recorded in Hi8 mode is played back.</td></tr>
<tr><td>20</td><td>VIDEO MUTE</td><td>O</td><td>Video output mute signal. "H" mute.</td></tr>
<tr><td>21</td><td>LINE MIX</td><td>O</td><td>"H" when menu display bilingual switch is at "Off" and no plug is inserted in right audio output terminal, during playback. (Monaural signal is output after L/R mixing). "H" also when no plug is inserted in right audio output terminal in camera mode (However, when external monaural microphone is not used.).</td></tr>
<tr><td>22</td><td>MX SEL 1</td><td>O</td><td rowspan="2">When recording: Monaural/stereo switching signal.
<table>
<tr><th></th><th>Monaural</th><th>Stereo</th></tr>
<tr><td>MX SEL 1</td><td>L</td><td>L</td></tr>
<tr><td>MX SEL 2</td><td>H</td><td>L</td></tr>
</table>
When playing back: Monaural/stereo/bilingual switching signal.
<table>
<tr><th></th><th>Stereo</th><th>Main</th><th>Sub</th><th>Monaural</th></tr>
<tr><td>MX SEL 1</td><td>L</td><td>L</td><td>H</td><td>L</td></tr>
<tr><td>MX SEL 2</td><td>L</td><td>H</td><td>L</td><td>H</td></tr>
</table></td></tr>
<tr><td>23</td><td>MX SEL 2</td><td>O</td></tr>
<tr><td>24</td><td>MX ON/OFF</td><td>O</td><td>Matrix on/off signal. "H": Matrix on (stereo recording/playback)</td></tr>
<tr><td>25</td><td>Hi8/$\overline{\text{NORM}}$ (E/$\overline{\text{L}}$)</td><td>O</td><td>Video circuit normal/Hi8 switching signal. "H": Hi8 mode.</td></tr>
<tr><td>26</td><td>CAM/$\overline{\text{LINE}}$</td><td>O</td><td>Camera input/line input switching signal. "H": Camera input.</td></tr>
<tr><td>27</td><td>SP/$\overline{\text{LP}}$</td><td>O</td><td>SP/LP switching signal. "L": LP.</td></tr>
<tr><td>28</td><td>$\overline{\text{EDIT}}$</td><td>O</td><td>Video circuit normal/EDIT switching signal. "L": When edit of menu display is at "ON".</td></tr>
<tr><td>29</td><td>UNLOAD</td><td>O</td><td>Loading motor control signal. When unloading: "H" or "H" pulse.</td></tr>
<tr><td>30</td><td>LOAD</td><td>O</td><td>Loading motor control signal. When loading: "H" or "H" pulse.</td></tr>
<tr><td>31</td><td>LM LIM CONT</td><td>O</td><td>Loading motor limiter control signal. Momentarily "H" when loading.</td></tr>
<tr><td>32</td><td>DRUM ON</td><td>O</td><td>Drum motor on/off signal. "H" (Approx. 1.3V): Drum on.</td></tr>
<tr><td>33</td><td>DRUM FWD/$\overline{\text{RVS}}$</td><td>O</td><td>Drum rotation direction control signal. Normally "H".</td></tr>
<tr><td>34</td><td>NC</td><td></td><td rowspan="2">Not used (open).</td></tr>
<tr><td>35</td><td>NC</td><td></td></tr>
<tr><td>36</td><td>$\overline{\text{REEL HALL CONT}}$</td><td>O</td><td>Reel FG sensor (HALL element) power supply control signal. When active: "L".</td></tr>
<tr><td>37</td><td>MP</td><td></td><td>Connected to GND.</td></tr>
<tr><td>38</td><td>$\overline{\text{RESET}}$</td><td>I</td><td>Reset signal from mode control micro processor (FD-49P board IC902). When reset:"L".</td></tr>
<tr><td>39</td><td>VSS</td><td></td><td>GND</td></tr>
</table>

Pin No.	Signal Name	I/O	Function
40	XTAL	O	11.7 MHz clock oscillation circuit.
41	EXTAL	I	
42	$\overline{\text{CS MECHA}}$	I	Chip select signal from mode control micro processor **(FD-49P board IC902).**
43	DATA TO SLAVE	I	Serial data input from mode control micro processor.
44	DATA TO MSTER	O	Serial data output to mode control micro processor.
45	$\overline{\text{MODECON SCK}}$	I	Serial clock input from mode control micro processor.
46	MONO REC	O	Monaural/stereo recording switching signal. "H": During monaural recording (1.7 MHz REC AFM carrier off).
47	AUDIO MUTE	O	Audio output mute signal. "H": Mute.
48	TLV CHC	I	**Not used. Connected to SS 5V.**
49	L AUDIO OUT	O	Audio input/output switching signal. "H" when no signal in both DS off mode and playback mode.
50	AVSS		A/D converter system GND.
51	AVREF		A/D converter system reference voltage. Connected to SS5V.
52	AVDD		A/D converter system power supply. Connected to SS5V.
53	NC		Not used. Connected to GND.
54	TAPE END	I	Tape end detection signal. Normally: "L", "H" pulse at tape end.
55	TAPE TOP	I	Tape top detection signal. Normally: "L", "H" pulse at tape top.
56	$\overline{\text{DEW DET}}$	I	Condensation detection signal. "L" when condensation present.
57	BATT SENSE	I	Not used. Connected to GND.
58	ATF ERROR	I	ATF error, ATF lock error input.
59	S REEL FG	I	S reel FG signal input.
60	T REEL FG	I	T reel FG signal input.
61	NC		Not used. Connected to GND.
62	CAM VD	I	**VD signal from camera circiut sync generator (VC-137P board IC660). V cycle pulse.**
63	FLD	I	FIELD signal from camera circuit sync generator. 2V cycle pulse.
64	VTR SYNC	I	Composite sync signal separated from recording/playback Y signal.
65	SP/$\overline{\text{LP}}$ DET	I	Discriminates recording mode of playback tape during CUE/REVIEW/FF/REW. "L"=LP
66	DRUM PG	I	Drum PG signal input. For drum phase servo. 26.7 msec. cycle "H" pulse.
67	DRUM FG	I	Drum FG signal input. For drum speed servo. 4.4 msec. cycle pulse.
68	CAP FG	I	Capstan FG signal input. Approx. 1145.5 Hz during REC/PB for capstan speed servo (SP mode).
69	DS ON	O	Data screen on/off signal. Not used.
70	ME/$\overline{\text{MP}}$	O	Recording current switching signal. "H": ME tape.
71	TAPE LED ON	O	TAPE LED on/off signal. 200 msec. cycle "H" pulse during REC/PB.
72	VA PB	O	REC/PB switching signal of video/audio circuit. "H": PB.
73	CAP PWM	O	Capstan error signal output. 20.15 μsec. PWM signal.
74	DRUM PWM	O	Drum error signal output. 20.15 μsec. PWM signal.
75	CFG HMS	I	Capstan FG signal input. For tape counter.
76	$\overline{\text{S JACK IN}}$	I	"L" when plug is inserted in S VIDEO terminal.
77	LANC IN	I	Not used. Connected to SS +5V.
78	LANC OUT	O	Not used.
79	$\overline{\text{LM LIM ON}}$	I	Loading motor limiter on detection signal. Normally "H". "L" when limiter is on.
80	$\overline{\text{Hi8 MP SW}}$	I	Hi8 MP switch input. "L": Hi8 MP tape.
81	COMPOSIT REC	O	Video input/S video input switching signal. "H": Video input.
82	CLOG DET	I	Head clog detection signal. "L": Normal.
83	REF PILOT	O	Reference pilot signal for ATF servo. Output after synchronizing with drum rotation and switching 4 frequencies. f_1=101.0 kHz, f_2=117.2 kHz, f_3=162.8 kHz, f_4=146.5 kHz.
84	NC		Not used. Connected to GND.
85	NC		Not used. Connected to GND.
86	VSS		GND.
87	VDD		Connected to SS5V.
88	VPP		
89	$\overline{\text{MUTE 2B}}$	O	Head mute signal. Control signal for preventing cross-talk from other 3 heads during recording/playback. When PB/REC: 4V cycle pulse (Only head playing back/recording "L"). In other modes: "L".
90	$\overline{\text{MUTE 1B}}$	O	
91	$\overline{\text{MUTE 2A}}$	O	
92	$\overline{\text{MUTE 1A}}$	O	
93	$\overline{\text{REC 2B}}$	O	Recording heads (1A, 1B, 2A, 2B) switching control signal. When REC: 4V cycle pulse (Only head recording "L"). In other modes: "H".
94	$\overline{\text{REC 1B}}$	O	
95	$\overline{\text{REC 2A}}$	O	
96	$\overline{\text{REC 1A}}$	O	
97	$\overline{\text{RF SWP}}$	O	RF switching pulse signal. 25 Hz, 50% duty pulse.
98	$\overline{\text{1/2 RF SWP}}$	O	1/2 RF switching pulse signal. 12.5 Hz, 50% duty pulse.
99	CAP ON	O	Capstan driver on/off control signal. "H": Capstan on.
100	CAP FWD/$\overline{\text{RVS}}$	O	Capstan rotation direction control signal. "H": FWD, "L": RVS.

CAMERA CONTROL MICRO PROCESSOR
(VC-137P BOARD IC653:SC406814FU MC68HC11M2) PIN FUNCTIONS

Pin No.	Signal Name	I/O	Function
1	VTR SI	I	Serial data input from servo/mechanism control micro processor **(VC-137P board IC201).**
2	$\overline{\text{VTR SCK}}$	I	Serial data transfer clock for servo/mechanism control micro processor.
3	$\overline{\text{CAM CS}}$	I	Chip select signal from servo/mechanism control micro processor.
4			Not used.
5			
6			
7			
8			
9	VD	I	V SYNC from SYNC generator **(VC-137P board IC660).**
10	AJST	I	Adjusting timing pulse input from SYNC generator. Normally "L".
11			Not used.
12	VDD		+5V power supply.
13	VSS		GND
14			Not used.
15			
16			
17	WEN	I	Write-enable signal from timing generator (VC-137P board IC602). Normally "H", During SLOW shutter mode, "L" pulse from 2V to 16V cycle. Write-enable signal from timing generator (VC-137P board IC602).
18	$\overline{\text{CS DEF}}$	O	Chip select signal to V, VISTA (VC-137P board IC605) Chip select signal to V, VISTA (VC-137P board).
19	$\overline{\text{CS VISTA}}$	O	Chip select signal to VISTA control micro processor (VC-137P board IC651). Chip select signal to VISTA.
20	$\overline{\text{CS POST CORE}}$		Not used.Not used.
21	EEPROM BUSY	I	BUSY signal from EEPROM **(VC-137P board IC651).** Normally "H". "L" pulse during data reading/writing.
22			Not used.
23	IRIS PWM	O	Iris control signal. 16 μsec. cycle PWM signal.
24			Not used.
25			
26			
27			
28			
29			
30	XIRQ		Connected to +5V.
31	VDD		+5V power supply.
32	VSS		GND
33			Not used.
34			
35	$\overline{\text{CS AF}}$	O	Chip select signal to auto forcus micro processor **(LD-73P bpard IC751) Chip select signal to auto focus.**
36	$\overline{\text{CAM SCK}}$	O	Serial data transfer clock.
37	CAM SO	O	Serial data output.
38	CAM SI	I	Serial data input.
39			Not used.
40			
41	VDD		+5V power supply.
42			Not used. Connected to GND.
43			
44			
45			
46			Not used. Connected to GND.
47			
48			
49	HALL A/D	I	Hall voltage. Approx. 1V (iris open) to approx. 3.6V (iris close).
50	VRL	I	A/D port reference voltage (LOW). Connected to GND.
51	VRH	I	A/D port reference voltage (HIGH). Connected to +5V.
52	VSS		GND
53	$\overline{\text{AF COSMO RST}}$	O	Reset signal to auto focus micro processor **(LD-73P bpard IC751).** Normally "H". "L" when reset.
54			Not used.
55			
56	EEPROM LOCK	O	EEPROM **(VC-137P board IC651)** writing prohibition signal. Normally "H".
57	$\overline{\text{OPD RESET}}$	O	Reset signal to OPD **(VC-137P board IC656).** "H" in camera mode, "L" in VTR mode.
58			Not used.
59	$\overline{\text{CAM ON}}$	O	**A/D converter (VC-137P board IC604) on/off signal. Normally "L".**
60	$\overline{\text{NTSC}}$	O	NTSC: "L", PAL: "H".
61	IRQ		Connected to +5V.
62	$\overline{\text{CS TG}}$	O	Chip select signal to timing generator **(VC-137P board IC602).**
63	$\overline{\text{CS CORE}}$	O	Chip select signal to camera core **(VC-137P board IC659).**
64	$\overline{\text{CS CAM OPD}}$	O	Chip select signal to OPD **(VC-137P board IC656).**
65	D/A STB	O	Strobe signal to camera section EVR **(VC-137P board IC654).**
66	$\overline{\text{CS EEPROM}}$	O	Chip select signal to EEPROM **(VC-137P board IC651).**
67			Not used.
68			Not used.
69	$\overline{\text{CORE RESET}}$		**Reset signal to camera core (VC-137P board IC659). Normally "H". "L" when reset.**
70	VSS		GND
71	VDD		+5V power supply.
72			Not used.
73	EXTAL	I	16 MHz clock oscillation circuit.
74	XTAL	O	
75	$\overline{\text{RESET}}$	I	Reset signal from servo/mecanism control micro prosessor (VC-137P board IC201). Normally "H". "L" when reset.
76	MODB		Connected to +5V.
77	MODA		Connected to GND.
78	RXD		Not used.
79	TXD		Not used.
80	VTR SO	O	Serial data output to servo/mecanism control micro prosessor (VC-137P board IC201). Normally "H". "L" when reset.

DPD (VC-137P BOARD IC656 : CXD2133BR-T6) PIN FUNCTIONS

Pin No.	Signal Name	I/O	Function
1	TESTI0	I	TEST input. Normally "L"
2	VDD	—	Power supply pin. (+4V)
3	TESTO0	O	TEST output. Normally open.
4	TESTO1	O	TEST output. Normally open.
5	TESTO2	O	TEST output. Normally open.
6	TESTO3	O	TEST output. Normally open.
7	TESTO4	O	TEST output. Normally open.
8	TESTO5	O	TEST output. Normally open.
9	TESTO6	O	TEST output. Normally open.
10	TESTO7	O	TEST output. Normally open.
11	TESTO8	O	TEST output. Normally open.
12	TESTO9	O	TEST output. Normally open.
13	TESTOA	O	TEST output. Normally open.
14	TESTOB	O	TEST output. Normally open.
15	Vss	—	GND
16	TESTI1	I	TEST input. Normally "L"
17	VDD	—	Power supply pin. (+4V)
18	NABS	I	Selecting AF detect system. L:Full wave. H : Half wave
19	AWBG	I	AWB signal external input
20	DELAYOFF	I	DISP (pin-21) signal delay control pin. L : Delayed. H:No delay
21	DISP	O	Display signal output pin
22	Vss	—	GND
23	DISSEL3	I	Display output signal select pin. Select table is shown in Table 1.
24	DISSEL2	I	
25	DISSEL1	I	
26	DISSEL0	I	
27	SCK1	I	Serial clock input for AE, AWB signal input
28	SO1	O	AE, AWB serial output
29	SI1	O	AE, AWB serial input
30	XCE1	I	AE, AWB chip select
31	VDD	—	Power supply pin. (+4V)
32	SCK0	I	Serial clock input for electronic zoom and AF
33	SO0	O	Electronic zoom, AF serial output
34	SI0	I	Electronic zoom, AF serial input
35	XCE0	I	Electronic zoom, AF chip select
36	RESETZ	I	RESET pin. L : RESET. H : Operate
37	AFBUSY	O	BUSY flag output during AF operation
38	IVAFBUSY	I	Flag polarity switch during AF operation. L : "H" output during BUSY.
39	Vss	—	H : "L"output during BUSY.
40	ZOOM	I	GND
41	VDD	—	Electronic zoom mode select pin. L : Normal, H : Electronic zoom
42	TESTI2	I	Power supply pin. (+4V)
43	TESTI3	I	TEST input. Normally "L"
44	PAL	I	TEST input. Normally "L"
45	I760	I	NTSC/PAL select pin. L : NTSC, H:PAL

Pin No.	Signal Name	I/O	Function
46	TESTOC	O	TEST output. Normally open.
47	TESTI4	I	TEST input. Normally "L"
48	TESTI5	I	TEST input. Normally "L"
49	TESTI6	I	TEST input. Normally "L"
50	IVCLP	I	CLP1 read in phase select pin. L : MCK rising, H : MCK falling
51	CLP1	I	Digital clamp pulse input
52	Vss	—	GND
53	TESTOD	O	TEST output. Normally open.
54	VDD	—	Power supply pin. (+4V)
55	CL	I	4fsc clock input
56	IVIN	I	Input signal read in phase select pin. L : MCK rising, H : MCK falling
57	MCK	I	Main clock input. 760H : 4fsc, 510H:8/3 fsc
58	IVID	I	AWB ID polarity select
59	ID	I	AWB ID input
60	Vss	—	GND
61			Not connected
62	VDD	—	Power supply pin. (+3V)
63	HD	I	HD input
64	VD	I	VD input
65	VDD	—	Power supply pin. (+4V)
66	AD0	I	A/D signal input pin
67	AD1	I	A/D signal input pin
68	AD2	I	A/D signal input pin
69	AD3	I	A/D signal input pin
70	AD4	I	A/D signal input pin
71	AD5	I	A/D signal input pin
72	AD6	I	A/D signal input pin
73	AD7	I	A/D signal input pin
74	AD8	I	A/D signal input pin
75	AD9	I	A/D signal input pin
76	TESTI7	I	TEST input. Normally "L"
77	TESTI8	I	TEST input. Normally "L"
78	TESTI9	I	TEST input. Normally "L"
79	Vss	—	GND
80	TESTIA	I	TEST input. Normally "L"

SYNC GENERATOR (VC-137P BOARD IC656 : CXD2133BR) PIN FUNCTIONS

<table>
<tr><th>Pin No.</th><th>Signal Name</th><th>I/O</th><th>Function</th></tr>
<tr><td>1</td><td>HHLD</td><td>O</td><td rowspan="2">Mosaic size and timing are output to CXD2100. Size is selected by serial data HHD0-5 and VHD0-5. When HOLD=0 is set, HHLD=VHLD=1 is selected.</td></tr>
<tr><td>2</td><td>VHLD</td><td>O</td></tr>
<tr><td>3</td><td>CVOW</td><td>O</td><td rowspan="2">Data display signal is output to CXD2100. CVOW is "letter" signal. VCOB is edge signal. When CAMC=0 is set, VCOW=CVOB=0. (Active Low)</td></tr>
<tr><td>4</td><td>CVOB</td><td>O</td></tr>
<tr><td>5</td><td>VCK</td><td>O</td><td>Clock is output when CXD2100 is used as a delay line. PAL chroma signal modulation clock 1135Fh is also output. Delay clock for NTSC is 4 times FSCI. Delay clock for PAL is 5/4 times CL.
<table>
<tr><th>CAM</th><th>PAL</th><th>VCK</th></tr>
<tr><td>0</td><td>0</td><td>4 × FSCI</td></tr>
<tr><td>0</td><td>1</td><td>3 × FSCI</td></tr>
<tr><td>1</td><td>0</td><td>0</td></tr>
<tr><td>1</td><td>1</td><td>5 × FSCI/4(1135Fh)</td></tr>
</table></td></tr>
<tr><td>6</td><td>TEST1</td><td>I</td><td rowspan="3">TEST pin. Normally connected to GND.</td></tr>
<tr><td>7</td><td>TEST2</td><td>I</td></tr>
<tr><td>8</td><td>TEST3</td><td>I</td></tr>
<tr><td>9</td><td>FLD</td><td>O</td><td>Field pulse output</td></tr>
<tr><td>10</td><td>Vss</td><td>—</td><td>Digital GND</td></tr>
<tr><td>11</td><td>TCK</td><td>O</td><td>Titler clock is output. The clock input to 8FSC pin is divided by 3. This clock is used in 760H (MOD=0) system. In 510H (MOD=1) system 8FSC pin is connected GND and TCK pin is not used.</td></tr>
<tr><td>12</td><td>TSEL</td><td>I</td><td>Signal selecting the playback titler chroma signal modulator is input. Two types of playback title color can be selected. Color-1 is selected by TSEL=0. Color-2 is selected by TSEL=1. Two color simultaneous title is also possible. Color-1 is specified by RY00-05 and BY00-05 8-bits Color-2 is specified by RY10-15 and BY10-15 8-bits.</td></tr>
<tr><td>13</td><td>ENVD</td><td>I</td><td>EF envelope detect signal. It is used for AFC hold during playback noise bar period, and is also used to replace H SYNC. ENVD=0 indicates noise bar period. Set to ENVD=1 when not used.</td></tr>
<tr><td>14</td><td>PBSYNC</td><td>I</td><td>Playback composite sync input with positive polarity, used as AFC reference and for CLMP signal generation.</td></tr>
<tr><td>15</td><td>PBL</td><td>O</td><td>Line alternate signal input during PAL playback. In NTSC, fixed to PBL=1 or 0.</td></tr>
<tr><td>16</td><td>SETUP</td><td>O</td><td>Setup signal output as the substitute of picture when video signal is not input. It is output when NOSY=1. But CAM=1 must be established. SET UP=0 when NOSY=0. (Active High)</td></tr>
<tr><td>17</td><td>REGH</td><td>O</td><td>The composite sync signal as the substitute of picture when video signal is not input, and the H. SYNC signal during noise bar period in CUE/REV modes are output. To output the composite sync, CAM=1 must be established. Negative polarity output.
<table>
<tr><th>CAM</th><th>PAL</th><th>REGEN</th><th>ENVD</th><th>REGH</th></tr>
<tr><td>0</td><td>0</td><td>0</td><td>X</td><td>1</td></tr>
<tr><td>0</td><td>0</td><td>1</td><td>0</td><td>AFCH</td></tr>
<tr><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>X</td><td>0</td><td>X</td><td>X</td><td>1</td></tr>
<tr><td>1</td><td>1</td><td>X</td><td>X</td><td>C SYNC</td></tr>
</table></td></tr>
<tr><td>18</td><td>EVOB</td><td>I</td><td rowspan="2">EVF data display signal is output. EVOW is "letter" signal. EVOB is edge signal. When EVFC=0, EVOW=EVOB=0. (Active High)</td></tr>
<tr><td>19</td><td>EVOW</td><td>I</td></tr>
<tr><td>20</td><td>SVOB</td><td>O</td><td rowspan="2">Playback video data display signal is output. SVOW is "letter" signal. SVOB is edge signal. When SRC=0, SVOW=SVOB=0. (Active High)</td></tr>
<tr><td>21</td><td>SVOW</td><td>O</td></tr>
<tr><td>22</td><td>PBV</td><td>I</td><td>Playback VD input. Negative polarity</td></tr>
<tr><td>23</td><td>XRES</td><td>I</td><td>System reset input. (Active Low)</td></tr>
<tr><td>24</td><td>SCK</td><td>I</td><td>Clock input for serial communication interface</td></tr>
<tr><td>25</td><td>SIN</td><td>I</td><td>Data input for serial communication interface</td></tr>
<tr><td>26</td><td>XCE</td><td>I</td><td>Enable input for serial communication interface (Low Enable)</td></tr>
<tr><td>27</td><td>VMON</td><td>I</td><td>Mask pulse (MP) for on-screen data display IC is input. MP=VMON is selected when MPF=0. MP=IMP (internal mask) is selected when MPF=1. Letters and edge signals of on-screen data display IC is distributed to CVOB, CVOW, EVOB, EVOW, SVOB, SVOW by the mask pulse.
<table>
<tr><th>MP</th><th>Output Terminal</th></tr>
<tr><td>0</td><td>EVOB, EVOW</td></tr>
<tr><td>1</td><td>CVOB, CVOW, SVOB,</td></tr>
</table>
IMP is set up as follows. However, the setting is effective when CAM=1.
<table>
<tr><th>IMP</th><th>Range</th></tr>
<tr><td>0</td><td>Except IMP=1NTSC 206H~224H,</td></tr>
<tr><td>1</td><td>PAL 216H~233H</td></tr>
</table></td></tr>
<tr><td>28</td><td>VB</td><td>I</td><td>Edge pulse input for on-screen data display IC</td></tr>
<tr><td>29</td><td>LK</td><td>I</td><td>VB input for on-screen data display IC. Fixed to Low when not used. (Active High)</td></tr>
<tr><td>30</td><td>VBVG</td><td>I</td><td>VG input for on-screen data display IC. Fixed to Low when not used. (Active High)</td></tr>
<tr><td>31</td><td>VDD</td><td>—</td><td>Digital 4V power supply</td></tr>
<tr><td>32</td><td>VR</td><td>I</td><td>VR input for on-screen data display IC. Fixed to Low when not used. (Active High)</td></tr>
<tr><td>33</td><td>CGCK</td><td>O</td><td>Clock output for on-screen data display IC. For position adjustment of display letters CKDL0,CKDL1 polarity is inverted and 100 nsec adjustment is possible.
<table>
<tr><th>CKDL0</th><th>CKDL1</th><th>MP</th><th>CGCK</th></tr>
<tr><td>0</td><td>0</td><td>0</td><td>N</td></tr>
<tr><td>0</td><td>0</td><td>1</td><td>N</td></tr>
<tr><td>1</td><td>0</td><td>0</td><td>P</td></tr>
<tr><td>1</td><td>0</td><td>1</td><td>N</td></tr>
<tr><td>0</td><td>1</td><td>0</td><td>N</td></tr>
<tr><td>0</td><td>1</td><td>1</td><td>P</td></tr>
<tr><td>1</td><td>1</td><td>0</td><td>P</td></tr>
<tr><td>1</td><td>1</td><td>1</td><td>P</td></tr>
</table>
N : Negative polarity
P : Positive polarity
MCK, CL, LCK are divided to produce output clock.
<table>
<tr><th>CAM</th><th>MOD</th><th>CGCK</th></tr>
<tr><td>0</td><td>X</td><td>LCK/2</td></tr>
<tr><td>1</td><td>0</td><td>CL/3</td></tr>
<tr><td>1</td><td>1</td><td>MCK/2</td></tr>
</table></td></tr>
<tr><td>34</td><td>CGH</td><td>O</td><td>HD output for on-screen data display IC. Delay for letter position adjustment can be set by CHDL0-7. The maximum delay is 32 clocks of CGCK capable of about 6.4 usec adjustment. CHDL0-3 is assigned to MP1 while CHDL4-7 is assigned to MP=0.</td></tr>
<tr><td>35</td><td>CGV</td><td>O</td><td>VD output for on-screen data display IC. PB V is selected when CAM=0. VD is selected when CAM=1.</td></tr>
</table>

Pin No.	Signal Name	I/O	Function
36	Vss	—	Digital GND
37	DAVB	O	D/A de-coupling pin
38	AVS3	—	D/A converter GND
39	IREF	O	D/A converter reference current pin
40	VREF	I	D/A converter reference voltage pin
41	DAVG	O	D/A de-coupling pin
42	PBTC	O	D/A output of playback title modulation color signal
43	AVD3	—	D/A converter 4V power supply
44	AVD2	—	AFC circuit 4V power supply
45	OPR	I	OP amp reference current pin
46	FOI	I	AFC OP amp input
47	FOO	O	AFC OP amp output. Used when integrator is used in AFC loop.
48	AFCI	I	AFC VCO control voltage
49	AVS2	—	AFC circuit GND
50	Vss	—	Digital GND
51	AFCO	O I	AFC-VCO oscillator output. 602Fh output locked to PB SYNC. Oscillator stops at CAM=1.
52	LCK	O	Line-locked clock input. Connected to AFCO pin.
53	XPDF	O	AFC error output pin. Error polarity at PDF and XPDF is reversed when loop filter uses passive element for PDF pin and it uses built-in OP amp for XPDF pin.
54	PDF	I	
55	VARI	O	Subcarrier-locked clock input. Connected to PLLO pin.
56	PLLO	—	PLL VCO oscillator output. Clock locked to FSCI and CL is output. CAM | PAL | PLLO 0 | 0 | 4 × FSCI 0 | 1 | 4 × FSCI 1 | 0 | Oscillation stops. 1 | 1 | 5 × CL/4(1135Fh)
57	AVD1	I	PLL circuit 4V power supply
58	PLLI	O	PLL circuit VCO control voltage pin
59	POO	I	PLL circuit OP amp output. Used when integrator is used in PLL loop.
60	POI	—	PLL circuit OP amp input
61	AVS1	O	PLL circuit GND
62	PDP	I	PLL error output
63	FSCI	O	Playback subcarrier input. Because input buffer is CMOS amp, connect signal via capacitor coupling. Minimum amplitude is 200 mV p-p.
64	CFO	I	Signal output for external ceramic filter. When 3xFSCI is necessary (PAL=1, CAM=0), the third harmonics is separated by ceramic filter, as PLL uses 4 times frequency.
65	3FSI	O	External ceramic filter connection pin. CMOS amp input. The minimum amplitude is 200 mV p-p.
66	3FSO	I	3FSI amp output
67	8FSC		1820 Fh (NTSC) or 1816 Fh (PAL) clock input. Connected GND when MOD-1.
68	MCK	I	1820/3 Fh (NTSC) or 1816/3Fh (PAL) clock input. Connected GND when MOD-0.
69	CL	I	910 Fh (NTSC) or 908 Fh (PAL) clock input.
70	CLMP	O	Clamp pulse output for the video signal input to be used for A/D when CXD2100 is used as delay line. FSCI 7-clock width pulse is output. It is masked while ENVD=0. (Active High)
71	VDD	—	Digital 4V power supply
72	AJST	O	Timing pulse output for CXD2100 adjustment. The CL 7-clock width pulse is output per field by setting AJST0-15. Normally set to 0 to establish high impedance.
73	VD	O	Vertical drive pulse. PB V is output with CAM=0. (Active Low)
74	HD	O	Horizontal drive pulse. HD locked to AFC is output to PB SYNC with CAM=0.(Active Low)
75	BF	O	Burst flag pulse (Active Low)
76	CBLK	O	Composite blanking pulse (Active Low)
77	LALT	O	Line alternate pulse
78	Vss	—	Digital GND
79	IF VDD	—	Interface circuit power supply. MOD=0→4V MOD=1→3V
80	CSYNC	O	Composite SYNC, positive polarity

AUTO FORCUS CONTROL MICRO PROCESSOR
(LD-73P BOARD IC751:CXP80624A/SGX3700) PIN FUNCTIONS

Pin No.	Signal Name	I/O	Function
1	PB3		Not used.
2	PB2		
3	PB1		
4	PB0		
5	RTO7/D7		
6	RTO6/D5		
7	RTO5/D5		
8	PC4/RT04		
9	PDR RESET	O	Zoom pre-driver (LD-66 board IC752) reset signal. Normally "H". "L" when reset.
10	ZOOM DRIVE	O	Not used.
11	PC1/PP017		
12	PC0/PP016		
13	PJ7/FSEL31		
14	PJ6/FSEL30		
15	PJ5/FSEL21		
16	PJ4/FSEL20		
17	PJ3/FSEL11		
18	PJ2/FSEL10		
19	PJ1/FSEL01		
20	PJ0/FSEL00		
21	PD7		
22	PD6		
23			
24			
25	WEN		Not used.
26			Connected to +5V.
27	FOC END SENSE	I	Not used. Connected to +5V.
28	ZOOM END SENSE	I	ZOOM END sensor input. Normally "H". Sensor input "L" pulse.
29	PH7		Not used.
30	PH6		
31	PH5		
32	PH4		
33	PH3		
34	PH2		
35	PH1		
36	PH0		
37	MP		Connected to GND.
38	$\overline{\text{AF RESET}}$	I	Reset signal from servo/mecanism control micro prosessor **(VC-137P board IC653). Normally "H".** "L" when reset.
39	VSS		GND
40	XTAL	O	12 MHz clock oscillation circuit.
41	EXTAL	I	
42	$\overline{\text{CS AF}}$	I	Chip select signal from camera control micro processor **(VC-137P board IC653).**
43	CAM SI	I	Serial data input from camera control micro processor.
44	CAM SO	O	Serial data output to camera control micro processor.
45	$\overline{\text{CAM SCK}}$	I	Serial data transfer clock from camera control micro processor.
46	PF7		Not used.
47	PF6		
48			
49			
50	AVSS		A/D port GND.
51	AVREF	I	A/D port reference voltage. Connected to +5V.
52	AVDD		A/D port +5V power supply.
53	FOCUS SENSE B	I	Focus sensor B input. Approx. 1.5 Vdc to approx. 3.2 Vdc analog voltage.
54	FOCUS SENSE A	I	Focus sensor A input. Approx. 1.5 Vdc to approx. 3.2 Vdc analog voltage.
55	MAN FOCUS(2)	I	Manual focus ring input (2). 0 Vdc to 4.8 Vdc voltage change according to ring position.
56	MAN FOCUS(1)	I	Manual focus ring input (1). 0 Vdc to 4.8 Vdc voltage change according to ring position.
57	ZOOM SW	I	Zoom switch input. Normally...Approx. 2.4 Vdc. When pressed to TELE side...Approx. 4.5 Vdc. When pressed to WIDE side...Approx. 0.3 Vdc.
58	FOCUS SENSE C	I	Focus sensor C input. Approx. 1.5 Vdc to approx. 3.2 Vdc analog voltage.
59			Connected to GND.
60			
61	PG7/EX11		Connected to +5V.
62	VD IN	I	**V SYNC from SYNC generator (VC-137P board IC660).**
63	PG5/SYNC1		Connected to +5V.
64	PG4		
65	PG3		
66	PG2		
67	PG1		
68	AF BUSY		
69	PE7/DAB1		Not used.
70	PE6/DAB0		
71	PE5/DAA1		
72	PE4/DAA0		
73	PE3/PWM1		
74	FOCUS PWM		Focus control signal. 21 μsec. cycle PWM signal.
75			Connected to +5V.
76			
77	AF SI	I	**Serial data input from OPD (VC-137P board IC656) and zoom pre-driver (LD-73P board IC752).**
78	AF SO	O	Serial data input to OPD and zoom pre-driver.
79	$\overline{\text{AF SCK}}$	O	Serial data transfer clock.
80			Not used.
81	PI/TO		
82	PI/PWM		
83	PI/PO		
84	PIO		Connected to +5V.
85	PKO		
86	GND		Connected to GND.
87	VDD		Connected to +5V.
88	VPP		
89	PA7/A15		Not used.
90	$\overline{\text{CS PDR}}$	O	Chip select signal to zoom pre-driver (LD-66 board IC752).

Pin No.	Signal Name	I/O	Function
91	PA5		Not used.
92	PA4		
93	$\overline{\text{CS OPD}}$	O	Chip select signal to OPD (VC-137P board IC656).
94	PA2		Not used.
95			
96	$\overline{\text{ZOOM SENSE ON}}$	O	Zoom sensor on/off signal. Normally "H". "L" for approx. 1 second just after power is turned on.
97			Not used.
98			
99			
100			

MODE CONTROL MICRO PROCESSOR (FD-49P BOARD IC 902:MB89092PFV-G-SGX3700) PIN FUNCTIONS

Pin No.	Signal Name	I/O	Function
1	MOD0	I	Connected to GND.
2	MOD1	I	Connected to GND.
3	X0	I	10 MHz clock oscillacation circuit.
4	X1	O	
5	VSS		GND
6	$\overline{\text{RESET}}$	I	Reset input.
7	$\overline{\text{DATA SW}}$	I	Date key (CF-3700 block S02) input Normally "H". "L" when key is pressed.
8	$\overline{\text{TIME SW}}$	I	Time (CF-3700 block S03) input Normally "H". "L" when key is pressed.
9	$\overline{\text{EJECT SW}}$	I	Casette eject switch (SE-27 board SW201) input Normally "H"."L"when key is pressed.
10	$\overline{\text{VTR MODE SW}}$	I	Power supply switch (CF-3700 block S01) input . "L" when power suplly switch is at "Video".
11	AUTO LOCK SW	I	Auto lock switch (CF-3700 block S07) input. "H"during auto lock.
12	$\overline{\text{START/STOP SW}}$	I	Start/stop key (CF-3700 block S05) input. "L"when key is pressed (However, when power supply switch is at "Camera" and stand-by switch at "Standby".)
13	$\overline{\text{CC DOWN SW}}$	I	CCDOWN switch mechanism section) input. "L" when cassette compartment is locked.
14	$\overline{\text{CAM+STBY SW}}$	I	Power supply switch (CF-3700 block S01), stand-by switch (CF-3700 block S04) input. "L" when power supply switch is at "Camera" and stand-by switch at "Standby".
15	BATT IN	I	Main battery detection input. "H" when main battery is loaded or external power suplly is connected.
16	PB V	I	System sync signal from servo/mechanism control micro prosessor (VC-137P board IC201). Timing reference signal of communication, LANC, etc.
17	SYSTEM SYNC	I	
18	$\overline{\text{LANC POWER ON}}$	I	Power on signal input from LANC I/F (FD-49P board IC903). "L" when power switch of remote commander is pressed.
19	$\overline{\text{LI PRE END}}$	I	RESET (FD-49P board IC901) from litium battery end detection input. "L" when litium battery has worn out or has not been loaded.
20	$\overline{\text{EEPROM WE}}$	O	
21	RF SWP	I	
22	$\overline{\text{WIND ON}}$		Wind noise reduction select signal. "L":ON, "H":OFF
23	$\overline{\text{TALLY LED}}$	O	Tally LED on/off signal. "H" during camera recording.
24	$\overline{\text{SYSTEM RESET}}$	O	Reset signal of all systems. Normally "H". "L" when reset.
25	$\overline{\text{CHARGE}}$	O	Charge control signal. Normally "H". "L" when charged.
26	CLK 10M/$\overline{\text{32k}}$	I	Mode control micro processor clock frequency switching signal. "H" (10 MHz) when main battery is loaded or exterminal power supply is connected, "L" (32 kHz) when backed up litium battery.
27	DATA TO MOD	I	VSC serial date input
28	DATA TO VSC	I	VSC serial date output
29	$\overline{\text{SCK VSC}}$	O	VSC serial date transfer clock
30	$\overline{\text{SIRCS IN}}$	I	Infrared remote commander signal input.
31	$\overline{\text{CS VSC}}$	O	Cip select signal to VSC (VC-137P board IC362).
32	AC 6.5/$\overline{\text{8.4}}$	O	AC power supply voltage switching. "H" when 6.5V. "L" when 8.4V.
33	$\overline{\text{CS EEPROM}}$	O	Chip select signal to EEPROM (VC-137P board IC346).
34	$\overline{\text{CS SR}}$	O	Cip select signal to video circuit Y signal process IC (VC-137P board IC401).

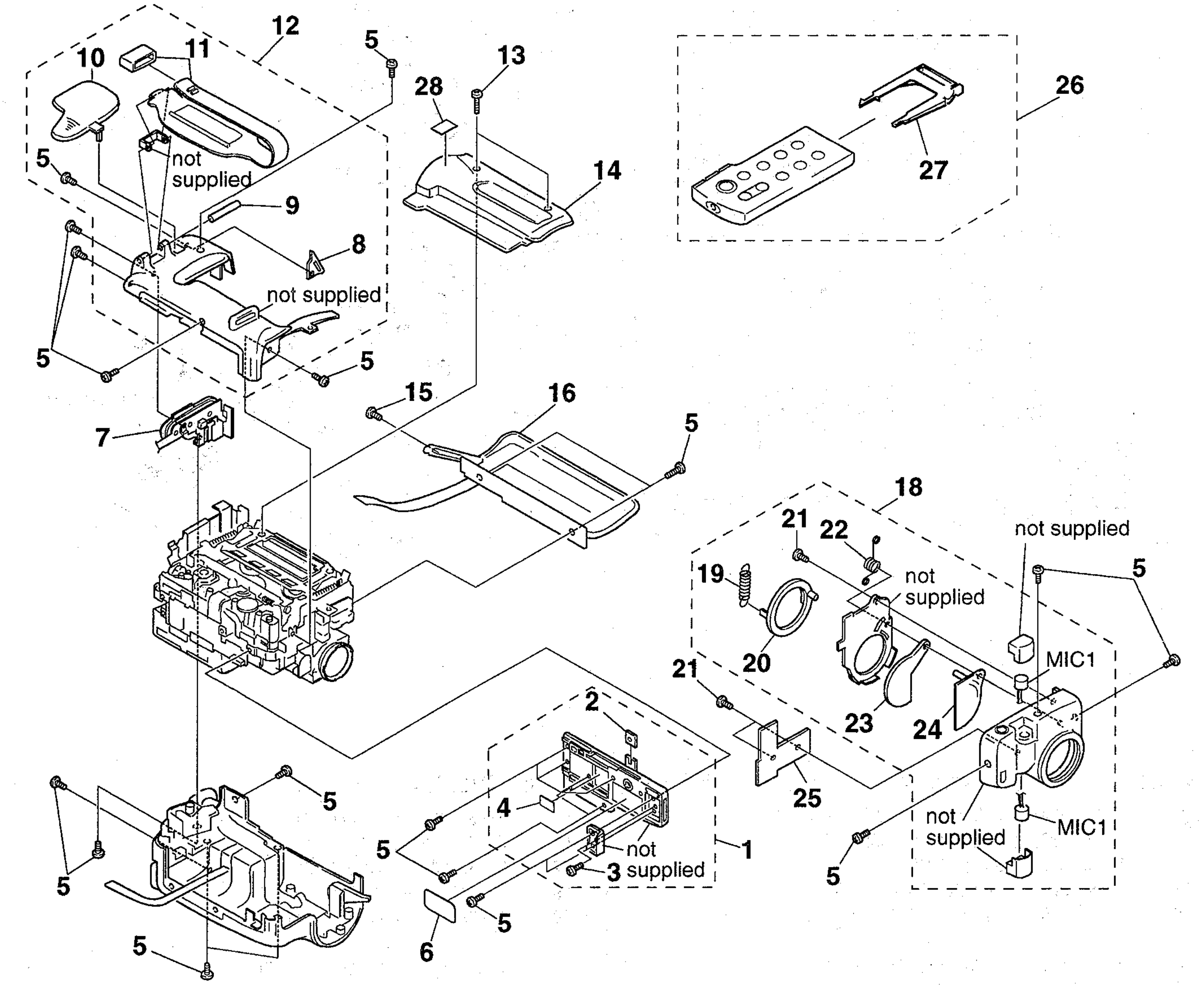
Pin No.	Signal Name	I/O	Function
35	IN/$\overline{\text{OUT}}$	O	Video input/output switching signal.
36	$\overline{\text{CS CG}}$	O	Chip select signal to SYNC generator (VC-137P board IC660).
37	STB DA	O	Strobe signal to video circuit EVR (VC-137P board IC303).
38	$\overline{\text{CS TAI}}$	O	Chip select signal to camera control micro processor (VC-137P board IC653).
39	LED ON	O	
40	$\overline{\text{NC}}$		Not used.
41	$\overline{\text{NC}}$		Not used.
42	NC		
43	SEG 19	O	LCD segment terminal drive signal. pulse of 4 values (0V, 1.6V, 3.2V and 4.8V).
44	SEG 18	O	
45	SEG 17	O	
46	SEG 16	O	
47	VCC		+5V power supply (+3V power supply during backup).
48	SEG 15	O	LCD segment terminal drive signal. pulse of 4 values (0V, 1.6V, 3.2V and 4.8V).
49	SEG 14	O	
50	SEG 13	O	
51	SEG 12	O	
52	SEG 11	O	
53	SEG 10	O	
54	SEG 09	O	
55	SEG 08	O	
56	VSS		GND
57	SEG 07	O	LCD segment terminal drive signal. pulse of 4 values(0V, 1.6V, 3.2V and 4.8V).
58	SEG 06	O	
59	SEG 05	O	
60	SEG 04	O	
61	SEG 03	O	
62	SEG 02	O	
63	SEG 01	O	
64	SEG 00	O	
65	V3	I	LCD drive bias voltage
66	V2	I	
67	V1	I	
68	V0	I	
69	COM0	O	LCD segment terminal drive signal. pulse of 4 values(0V, 1.6V, 3.2V and 4.8V).
70	COM1	O	
71	COM2	O	
72	COM3	O	
73	$\overline{\text{CS OSD}}$	O	Chip select signal to character generator (VC-137P board IC345)
74	$\overline{\text{CS MECHA}}$	O	Chip select signal to servo/mechanism contorol micro processor (VC-137P board IC201).
75	DATA TO MASTER	I	Serial data input signal.
76	DATA TO SLAVE	O	Serial data output signal.
77	$\overline{\text{MODECON SCK}}$	O	Serial data transfer clock.
78	TG STBY 1	O	Controls 4FSC of timing generator (VC-137P board IC602). "H" when no signal in VTR mode, "L"at other times.
79	VTR DD ON	O	VTR DC-DC converter control signal. "H" when power switch is at "Video" or "Camera".
80	CAM DD ON	O	CAMERA DC-DC converter control signal.
81	AVSS		A/D port GND.
82	K AD IN 0	I	Key input. A/D port. No input ········ 4.9V Edit search (−) key (FK-3700 block S010) ········ 2.6V~3.7V Playback key (FK-3700 block S003) ········ 1.7V~2.5V Fast forward key (FK-3700 block S004) ········ 0.9V~1.6V Stop key (FK-3700 block S001) ········ 0.3V~0.8V Record key (FK-3700 block S006/S007) ········ 0V~0.3V
83	K AD IN 1	I	Key input. A/D port. No input ········ 5V Edit search (+) key (FK-3700 block S009) ········ 4V Date serch (FK-3700 block S003) ········ 2V Rewind key (FK-3700 block S002) ········ 1V Pause key (FK-3700 block S005) ········ 0V
84	K AD IN 2	I	Key input. A/D port. No input ········ 5V Item key (CF-3700 block S24) ········ 3V Menu key (CF-3700 block S22) ········ 2V Setting key (CF-3700 block S23) ········ 1V Fader key (FK-3700 block S21) ········ 0V
85	K AD IN 3	I	Key input. A/D port. No input ········ 5V Forcus key (CF-3700 block S14) ········ 3V Brightness lock key (CF-3700 block S12) ········ 2V Program key (CF-3700 block S13) ········ 1V Counter key (FK-3700 block S11) ········ 0V
86	STEADY SW	I	Key input. A/D port. STEADY key (CF-3700 block S06) (OFF) ········ 3V STEADY key (CF-3700 block S06) (ON) ········ 0V
87	NC		Not used.
88	NC		Not used.
89	CHARGE REF	I	CHARGE REF voltage input.
90	AVCC		A/D port power supply (+5V).
91	BATT SENS		For battery end derection, main battery voltage input. (Voltage divided in to 1/2 by R933, R936)
92	BATT/$\overline{\text{EXT}}$	I	Battery/exterminal power supply switching signal input. "L" when exterminal power supply is used.
93	BRIGHA B	I	Brightness adjusting dial input. Pulse input by dial rotation.
94	BRIGHT B	I	Brightness adjusting dial input. Pulse input by dial rotation.
95	LANC IN	I	LANC serial data input.
96	LANC OUT	O	LANC serial data output.
97	BUZZER	O	Terminal for checking. (32 kHz clock (divide-by-4))
98	VCC		+5V power supply (+3V power supply during backup).
99	CL1	O	32 kHz clock osillation circuit (for clock).
100	CL0	I	

SECTION 5
EXPLODED VIEWS

NOTE:

- –XX, –X mean standardized parts, so they may have some differences from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.

5-1. CABINET (L) AND F PANEL ASSEMBLIES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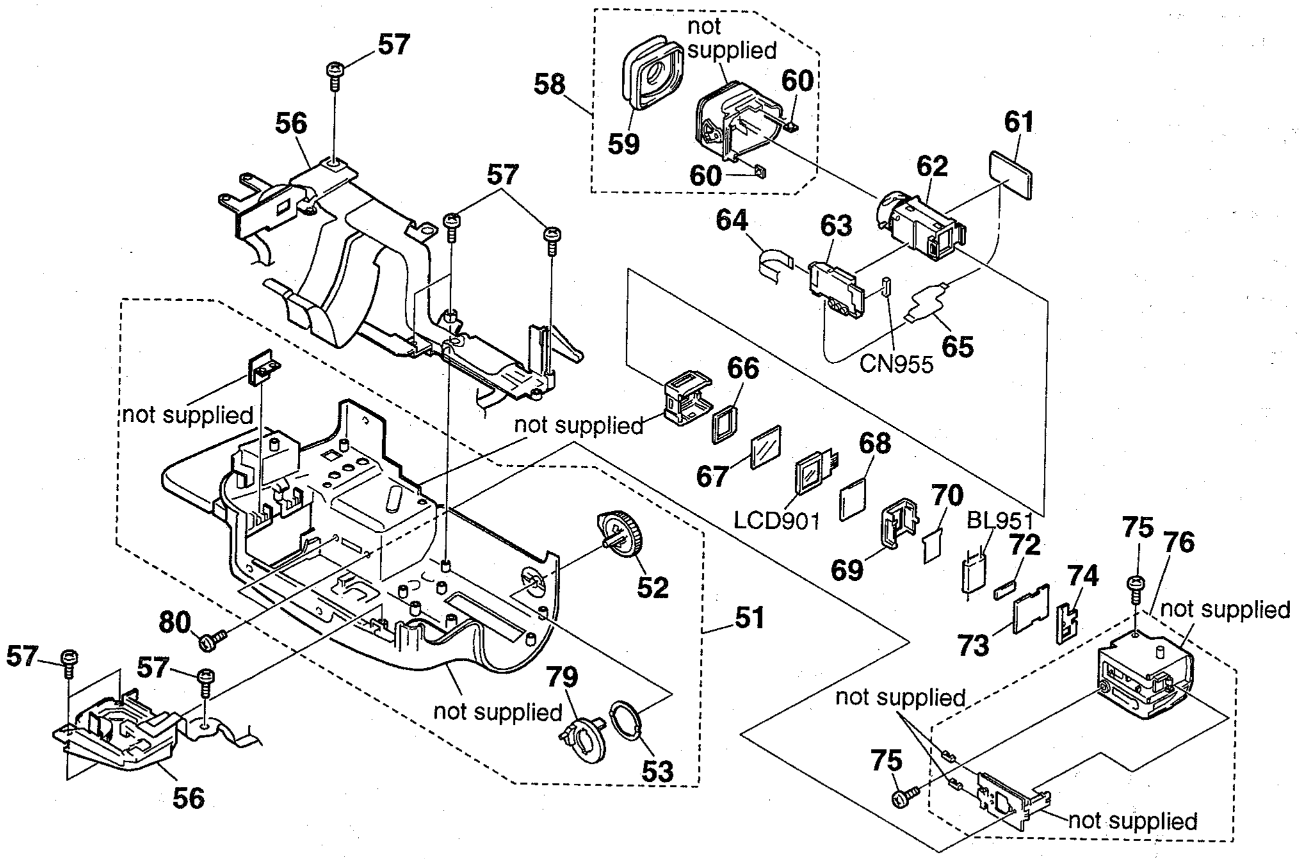
Ref. No.	Part No.	Description	Remarks
1	X-3944-040-1	BOTTOM ASSY, CABINET	
2	3-718-233-01	NUT, PLATE	
3	3-719-601-41	SCREW (B2X3), TAPPING	
4	3-943-701-01	LABEL, CAUTION	
5	3-719-381-01	SCREW (M2X4)	
* 6	3-957-884-01	LABEL, MODEL NUMBER (AE)(AEP)	
* 6	3-959-017-01	LABEL, MODEL NUMBER (E) (UK, E)	
7	1-537-577-21	TERMINAL BOARD (JACK BLOCK)	
8	3-948-922-01	BRACKET (L), STRAP	
9	3-948-913-01	SHAFT, BELT	
10	3-955-599-11	COVER, JACK	
11	3-948-905-81	BELT, GRIP	
12	X-3943-348-1	CABINET (L) ASSY	
13	3-727-902-61	SCREW (M1.4X5), SPECIAL	
14	X-3943-730-1	LID ASSY, CASSETTE	
15	3-713-786-51	SCREW (M2X3)	
16	1-467-260-31	SWITCH BLOCK, CONTROL (FK3700)(AEP, UK)	
16	1-467-260-51	SWITCH BLOCK, CONTROL (FK3700)(E)	
18	X-3943-325-1	PANEL ASSY, F	
19	3-307-378-11	SPRING, TENSION	
* 20	3-955-580-01	RING, DRIVING	
21	3-719-601-11	SCREW (B2X5), TAPPING	
22	3-955-559-01	SPRING, L COVER	
* 23	3-955-579-01	COVER (2), L	
* 24	3-955-578-01	COVER (1), L	
25	A-7071-974-A	MA-217P BOARD, COMPLETE	
26	1-467-599-11	REMOTE COMMANDER (RMT-709)	
27	3-708-412-01	COVER BATTERY, REMOCON	
28	3-703-710-41	STICKER, SONY SYMBOL (12)	
MIC1	1-542-215-11	MICROPHONE, CONDENSER	

5-2. CABINET (R) ASSEMBLY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LCD901
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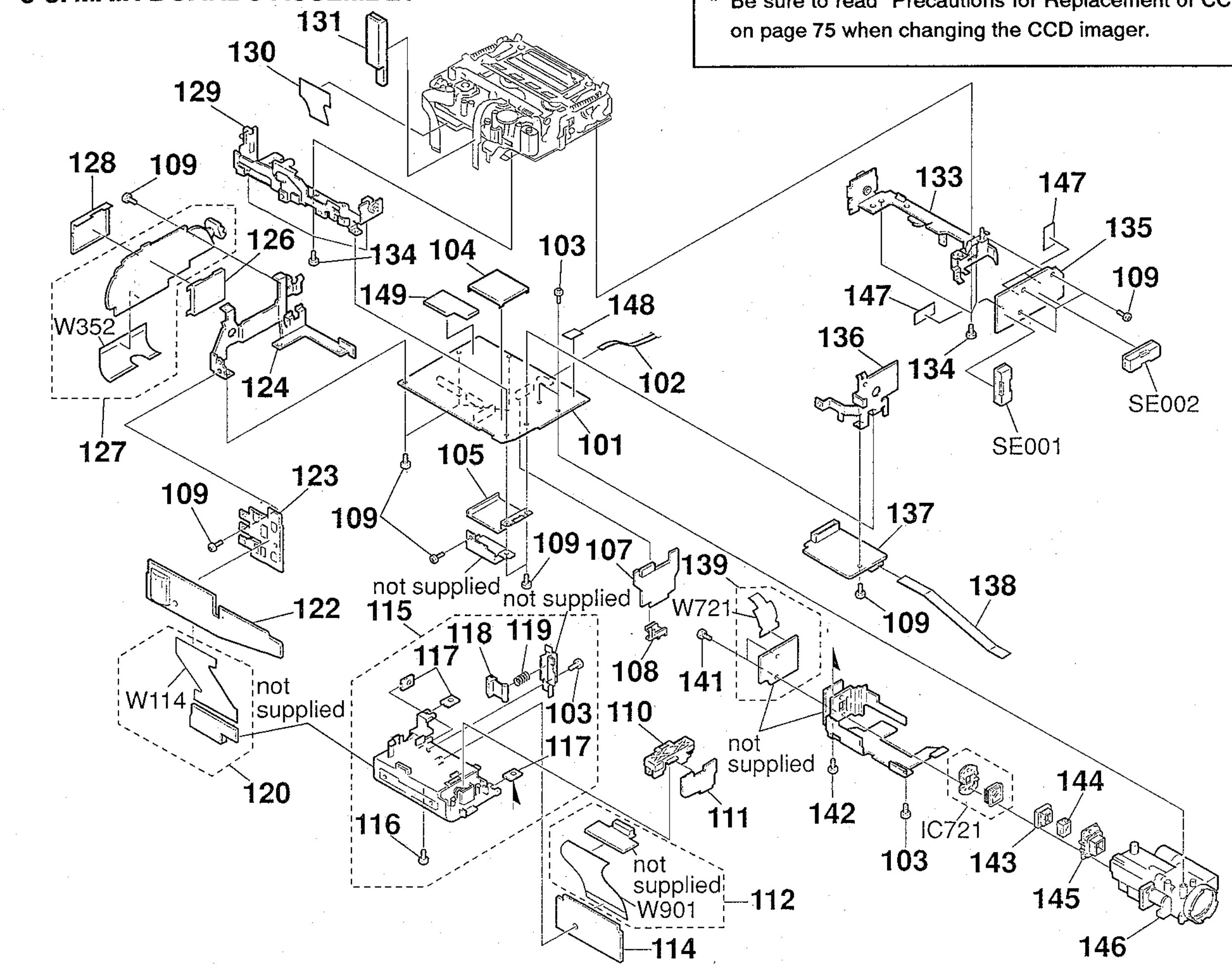
Ref. No.	Part No.	Description	Remarks
51	X-3943-746-1	CABINET (R) ASSY (AEP, UK)	
51	X-3943-323-1	CABINET (R) ASSY (E)	
52	3-955-589-11	KNOB, POWER	
53	3-955-567-01	SPRING, POWER LOCK	
56	1-467-259-51	SWITCH BLOCK, CONTROL (CF3700)	
57	3-719-601-01	SCREW (B2X5), TAPPING	
58	X-3943-741-1	CABINET ASSY, EVF (REAR)	
59	3-955-258-01	EYE CUP (for normal use)	
59	A-7092-195-A	EYE CUP SET (for eyeglasses use)	
60	3-718-233-01	NUT, PLATE	
61	A-7071-972-A	VF-61P BOARD, COMPLETE	
62	X-3943-216-1	LENS ASSY, VF	
⚠63	A-7071-973-A	VF-62P BOARD, COMPLETE	
64	1-649-184-11	FP-24 FLEXIBLE BOARD	
65	1-644-945-11	FP-581 FLEXIBLE BOARD	

Ref. No.	Part No.	Description	Remarks
* 66	3-955-339-01	SPACER, LCD	
* 67	3-955-340-01	FILTER, LCD	
68	3-958-280-01	ILLUMINATOR, BL	
69	X-3943-227-1	HOLDER ASSY, BL	
* 70	3-955-570-01	PLATE, CONDENSE, BL	
* 72	3-955-573-01	SPACER (E), BL	
73	A-7071-971-A	FF-77P BOARD, COMPLETE	
74	3-949-020-01	HOLDER (R), LCD	
75	3-719-381-01	SCREW (M2X4)	
76	X-3943-742-1	CABINET ASSY, EVF (FRONT)	
79	3-955-590-01	HOLDER, POWER KNOB	
80	3-719-381-11	SCREW (M2X5)	
⚠BL951	1-519-746-21	TUBE, FLUORESCENT (0.7 INCH)	
* CN955	1-569-438-11	CONNECTOR, BOARD TO BOARD (F) 8P	
LCD901	8-753-010-01	LCX004AK-1	

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

5-3. MAIN BOARDS ASSEMBLY

* Be sure to read "Precautions for Replacement of CCD Imager" on page 75 when changing the CCD imager.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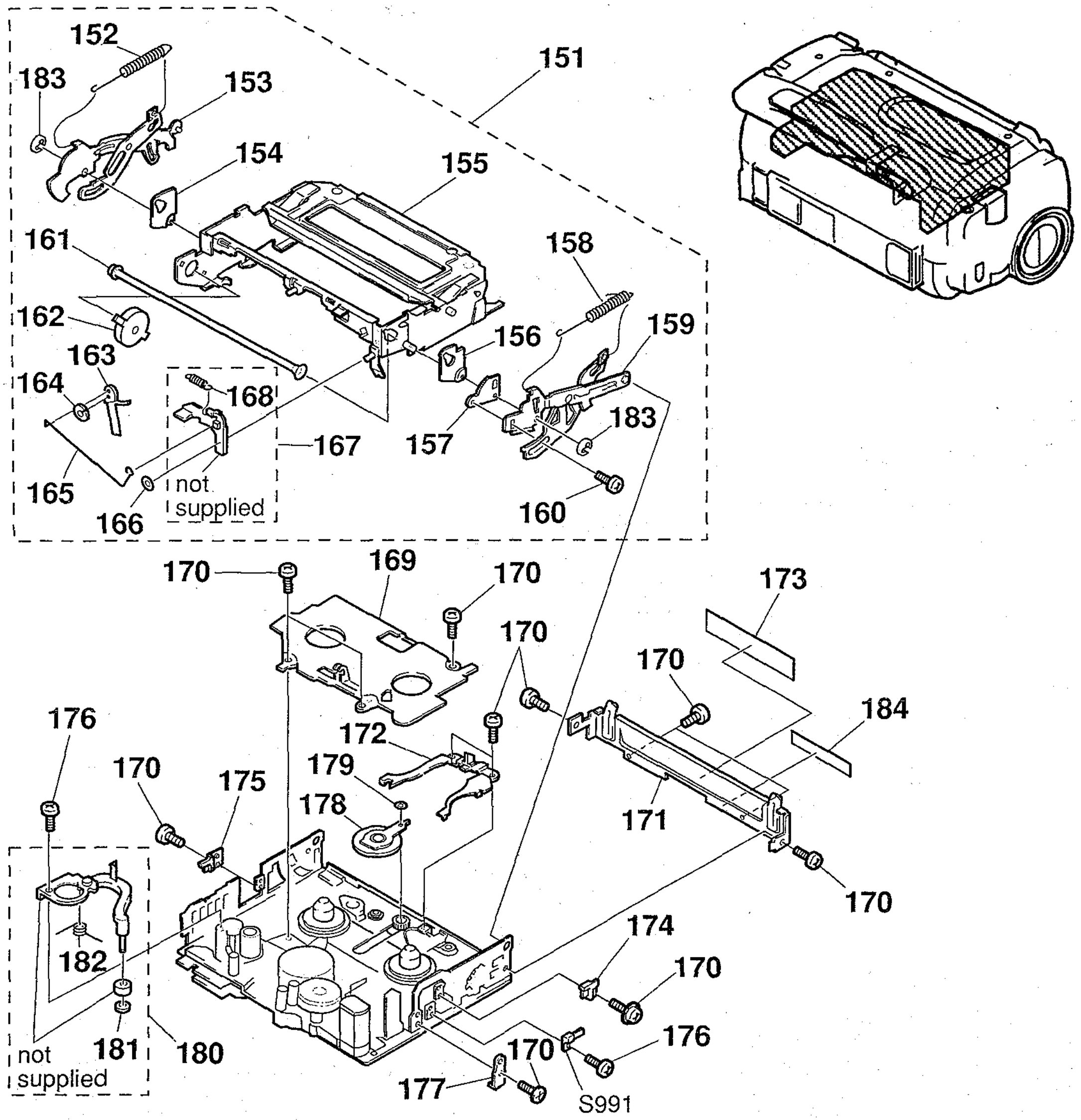
Ref. No.	Part No.	Description	Remarks
101	A-7063-893-A	VC-137P BOARD, COMPLETE	
102	1-649-182-11	FP-22 FLEXIBLE BOARD	
103	3-719-601-01	SCREW (B2X5), TAPPING	
* 104	3-949-023-01	CASE (B), SHIELD, RP	
* 105	3-949-011-01	CASE (A), SHIELD, RP	
107	A-7071-967-A	LD-73P BOARD, COMPLETE	
* 108	3-955-557-01	PLATE, RETAINER, LD	
109	3-713-786-51	SCREW (M2X3)	
110	1-537-578-11	TERMINAL BOARD, BATTERY	
111	A-7071-968-A	FU-122P BOARD, COMPLETE	
112	A-7071-970-A	CN-87P BOARD, COMPLETE	
114	A-7071-969-A	FD-49P BOARD, COMPLETE	
115	X-3943-740-1	HOLDER ASSY, BATTERY	
116	7-627-553-18	SCREW,PRECISION +P 2X2	
117	3-718-233-01	NUT, PLATE	
118	3-955-588-11	BUTTON, BATTERY RELEASE	
119	3-303-936-00	SPRING, COMPRESSION	
120	A-7071-965-A	CN-86P BOARD, COMPLETE	
122	A-7071-964-A	EZ-12P BOARD, COMPLETE	
123	X-3942-719-1	RETAINER ASSY, EZ	
* 124	3-955-595-01	FRAME (REAR), VC	
* 126	3-955-249-01	CASE (LOWER), SHIELD, DV	
127	A-7063-891-A	DV-25P BOARD, COMPLETE	
* 128	X-3943-230-1	CASE (UPPER) ASSY, SHIELD, DV	
129	X-3943-224-1	FRAME (LOWER) ASSY, MD	
130	1-644-943-11	FP-550 FLEXIBLE BOARD	
131	3-951-878-01	CUSHION, D FLEXIBLE	
133	X-3943-223-2	FRAME (UPPER) ASSY, MD	
134	3-703-816-41	SCREW (M1.4X2.5), SPECIAL HEAD	
135	A-7071-966-A	SE-34P BOARD, COMPLETE	
* 136	3-955-574-01	FRAME (FRONT), VC	
137	A-7063-892-A	AU-154P BOARD, COMPLETE	
138	1-649-183-11	FP-23 FLEXIBLE BOARD	
139	A-7071-962-A	CD-123P BOARD, COMPLETE	
141	3-947-268-11	SCREW (B TIGHT)(2X7.5),TAPPING	
142	3-719-381-01	SCREW (M2X4)	
143	3-949-283-01	RUBBER (2), SEAL	
144	1-547-529-21	FILTER BLOCK, OPTICAL	
145	3-949-282-01	ADAPTOR (EM), CCD FITTING	
146	8-848-701-01	DEVICE, LENS LSV-110A	
147	3-831-441-11	CUSHION, SE	
148	9-911-839-XX	CUSHION, VC	
149	A-7071-963-A	KA-3P BOARD, COMPLETE	
IC721	A-7030-495-A	CCD BLOCK ASSY (AUTO) (ICX060AK) (CCD IMAGER)	
SE001	1-810-024-31	SENSOR, ANGULAR VELOCITY	
SE002	1-810-024-41	SENSOR, ANGULAR VELOCITY	
W114	1-649-180-11	FP-20 FLEXIBLE BOARD	
W352	1-649-179-11	FP-19 FLEXIBLE BOARD	
W721	1-649-178-11	FP-18 FLEXIBLE BOARD	
W901	1-649-181-11	FP-21 FLEXIBLE BOARD	

5-4. CASSETTE COMPARTMENT HOLDER ASSEMBLY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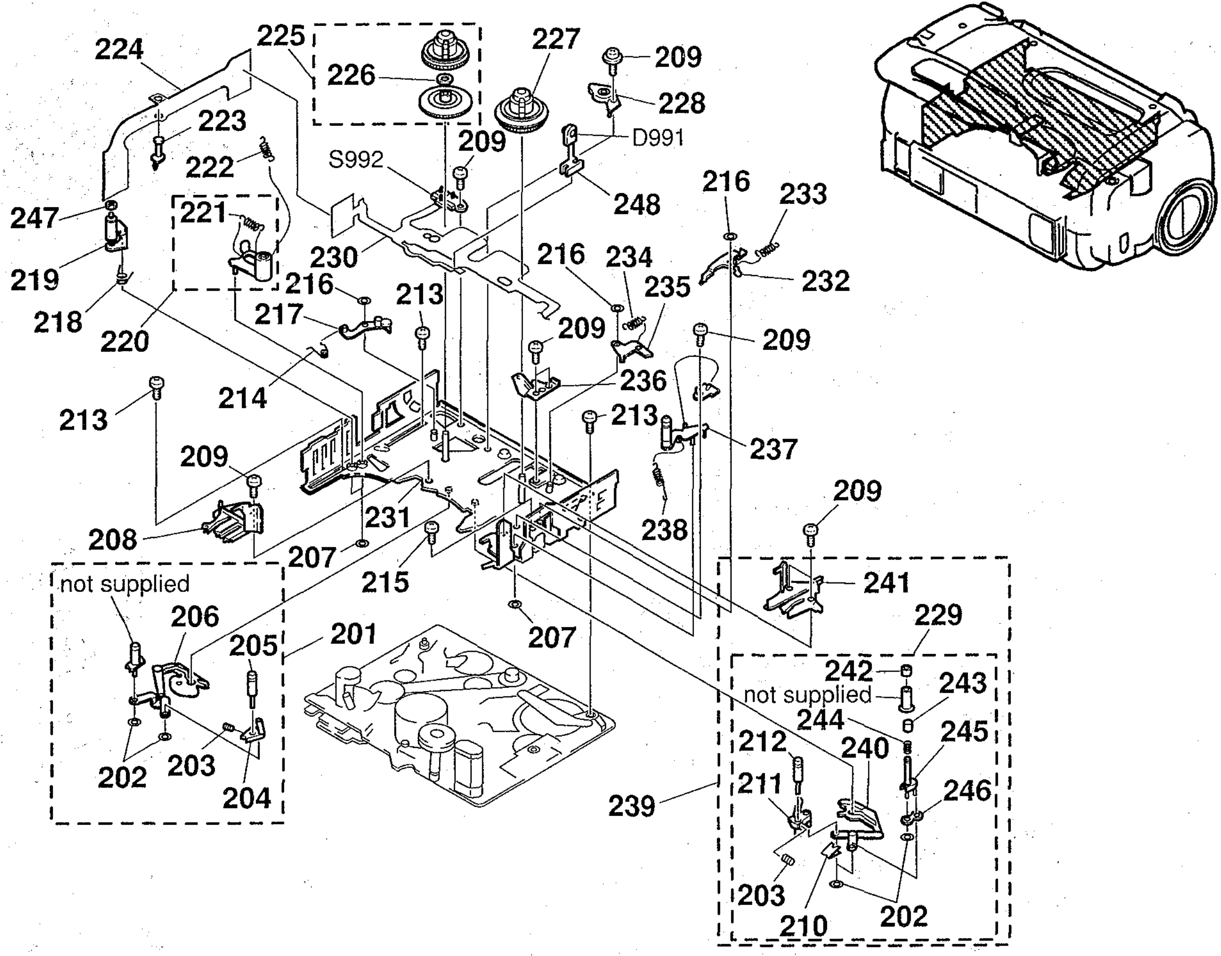
Ref. No.	Part No.	Description	Remarks
151	A-7040-255-A	HOLDER BLOCK ASSY (L)	
152	3-739-872-01	SPRING, TENSION	
153	X-3940-677-1	ARM (T) ASSY (L), F	
154	3-728-145-01	BEARING (T), MIDWAY GEAR	
155	X-3940-680-1	HOLDER ASSY (L)	
156	3-728-146-01	BEARING (S), MIDWAY GEAR	
157	3-739-808-01	PLATE (2), ADJUSTMENT, C ARM	
158	3-739-873-01	SPRING, TENSION	
159	X-3940-678-1	ARM (S) ASSY (L), F	
160	3-728-126-01	SCREW (M1.4X2), SPECIAL HEAD	
161	X-3727-920-1	GEAR ASSY, MIDWAY	
162	X-3739-809-1	DAMPER ASSY (2)	
163	X-3940-991-1	PROTECTOR ASSY (2), T	
164	3-749-304-01	WASHER, STOPPER	
165	3-728-277-01	BAR, JOINT	
166	3-331-007-11	WASHER	
167	A-7040-164-A	ARM BLOCK ASSY, TP	
168	3-509-127-00	SPRING, TENSION	
169	3-951-964-01	BASE, LED	
170	3-728-103-11	SCREW (M1.4X1.6), SPECIAL HEAD	
171	3-943-055-01	FRAME (L), LS	
172	X-3940-675-1	BASE ASSY (L), RL	
173	3-943-701-01	LABEL, CAUTION	
174	3-727-957-01	HOLDER (S), SENSOR	
175	3-727-954-01	HOLDER (T), SENSOR	
176	3-728-148-11	SCREW (M1.4X2.5), SPECIAL HEAD	
177	3-727-946-01	SUPPORT, LS	
178	X-3727-926-1	ARM ASSY, GEAR	
179	3-315-414-31	WASHER	
180	A-7040-264-D	ROLLER BLOCK ASSY, HC	
181	3-321-393-11	WASHER, STOPPER	
182	3-943-439-02	SPRING, TORSION	
183	7-624-102-04	STOP RING 1.5, TYPE -E	
184	3-942-882-01	SPACER, FK	
S991	1-572-611-11	SWITCH, LEAF (CASSETE LOCK)	

5-5. LS CHASSIS ASSEMBLY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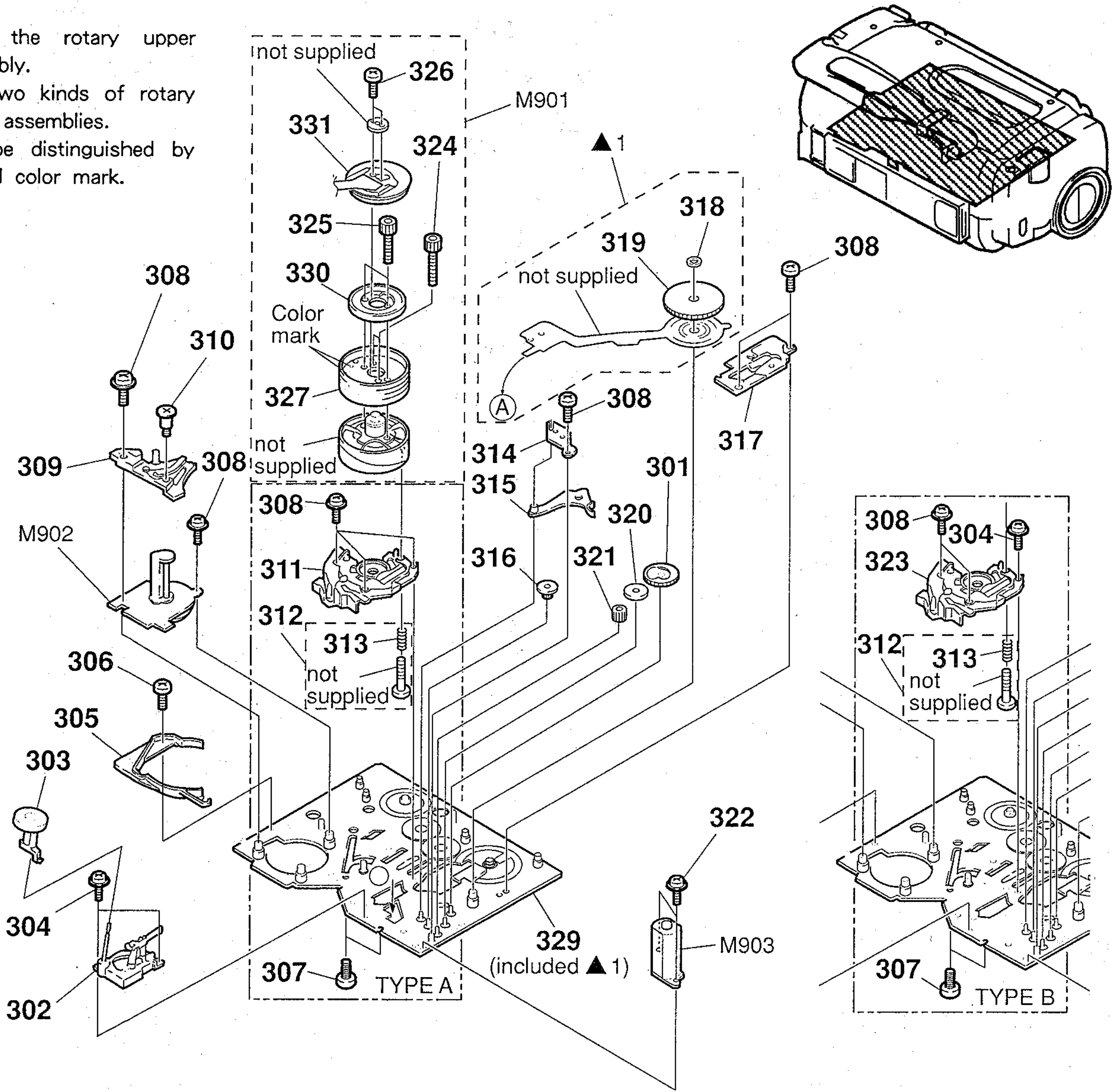
Ref. No.	Part No.	Description	Remarks
201	A-7040-148-Z	ARM (T) BLOCK ASSY, GUIDE	
202	3-331-007-11	WASHER	
203	3-728-290-01	SCREW (M1.2)	
204	X-3727-947-1	BASE ASSY, TG7	
205	X-3727-994-1	ROLLER ASSY, TG8	
206	X-3727-940-1	ARM (T) ASSY, GUIDE	
207	3-315-414-31	WASHER	
208	3-728-244-01	RAIL (T), GUIDE	
209	3-728-103-11	SCREW (M1.4X1.6), SPECIAL HEAD	
210	3-728-062-01	SPRING (6GB), LEAF	
211	X-3727-948-1	BASE ASSY, TG6	
212	X-3940-733-1	ROLLER ASSY (3), TG5	
213	3-941-601-01	SCREW (M1.4X2.5), SPECIAL HEAD	
214	3-732-068-01	SPRING (JD), RATCHET	
215	3-732-085-01	SCREW (1.2X1.6), SPECIAL HEAD	
216	3-728-091-01	WASHER, STOPPER	
217	X-3728-005-1	RATCHET ASSY (JD), T	
218	3-727-939-01	SPRING (JD), TORSION	
219	A-7040-252-A	ARM BLOCK ASSY (L), TG11	
220	A-7040-240-A	ARM BLOCK ASSY (JD), PINCH	
221	3-727-927-01	SPRING (POWER TENSION), TENSION	
222	3-732-089-03	SPRING (JD), TENSION	
223	3-739-807-01	SHAFT (2), FLEXIBLE ROTARY	
224	1-645-057-11	FP-574 FLEXIBLE BOARD	
225	X-3727-951-2	TABLE ASSY, REEL, TAKE-UP	
226	3-701-439-11	WASHER	
227	X-3727-952-1	TABLE ASSY, REEL, SUPPLY	
228	X-3727-914-4	CLUTCH ASSY, ONEWAY	
229	A-7040-262-C	ARM (S) BLOCK ASSY (3), GUIDE	
230	A-7062-792-A	FP-423 BLOCK ASSY (FLEXIBLE)	
231	X-3940-681-3	CHASSIS ASSY (L), LS	
232	3-732-077-01	RATCHET (JD), S	
233	3-732-076-02	SPRING (JD), TENSION	
234	3-732-078-02	SPRING (JD), TENSION	
235	3-732-079-01	ARM (JD), S SOFT	
236	3-728-206-01	PLATE, CAM, LS	
237	X-3749-001-1	ARM ASSY (JD), TG1	
238	3-940-616-03	SPRING (JD), TENSION	
239	A-7040-263-A	RAIL (S) BLOCK ASSY(3)(JD), GUIDE	
240	X-3727-941-1	ARM (S) ASSY, GUIDE	
241	3-728-226-01	RAIL (S) (JD), GUIDE	
242	3-943-822-01	FLANGE (P), TG4 UPPER	
243	3-728-048-01	SLEEVE, TG4	
244	3-728-023-01	SPRING, COMPRESSION	
245	X-3727-936-2	BASE ASSY, TG4	
246	3-728-053-01	PLATE, UNDER, TG4	
247	3-940-892-01	NUT, HEXAGON	
248	3-732-046-01	HOLDER, LED	
D991	8-719-988-42	DIODE GL453S	
S992	1-572-802-12	SWITCH, PUSH (3 KEY) (REC PROOF, ME/MP, Hi8 MP)	

5-6. MECHANISM CHASSIS ASSEMBLY (1)

Note: For the rotary upper drum assembly.
There are two kinds of rotary upper drum assemblies.
They can be distinguished by the indicated color mark.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329
(included ▲1)
M903
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TYPE A
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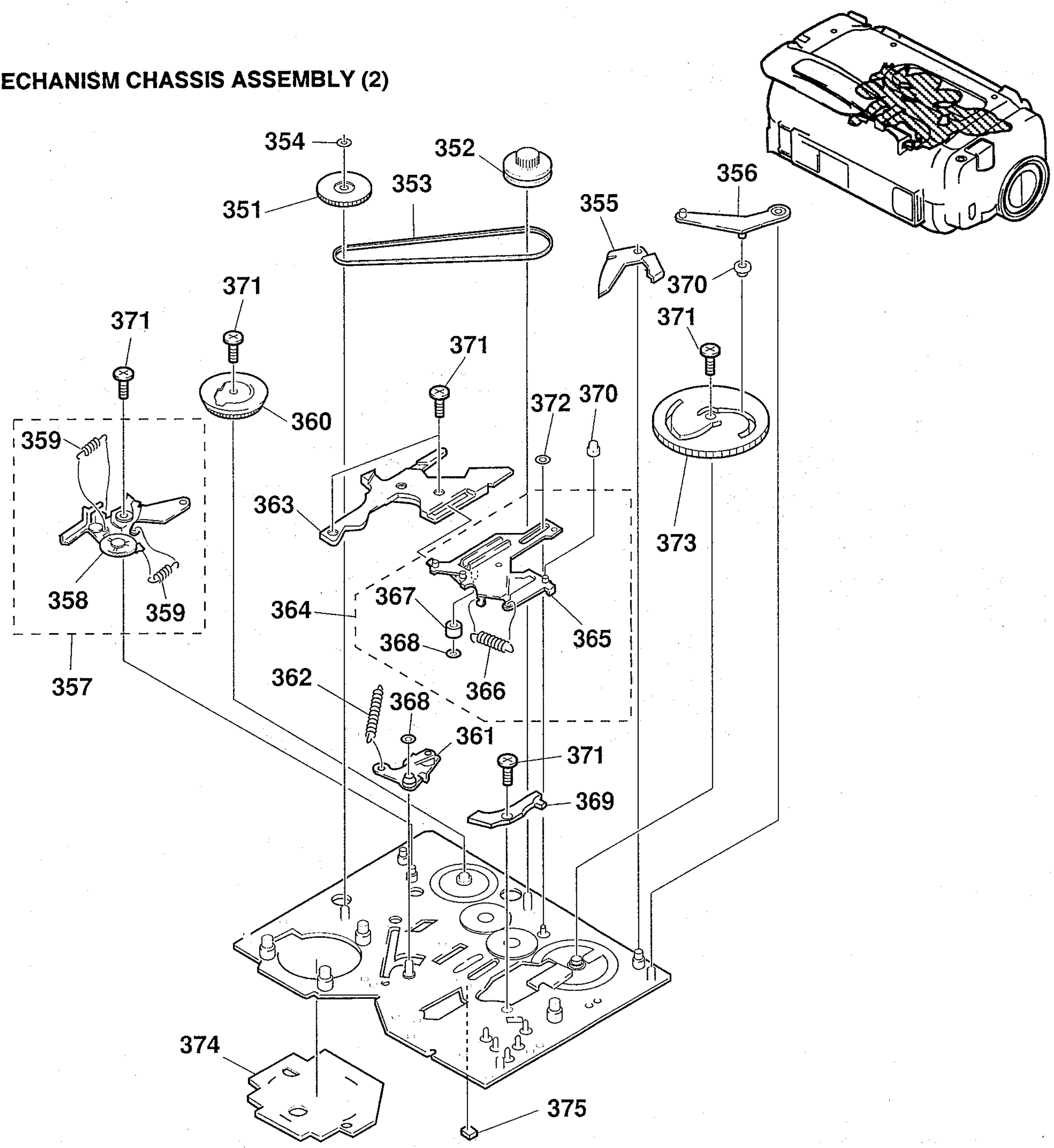
TYPE B
302

Ref. No.	Part No.	Description	Remarks
301	3-728-189-02	GEAR, NO. 3	
302	X-3941-929-4	RAIL (BASE) (1) ASSY (B), GUIDE	
303	X-3941-930-1	ROLLER ASSY, IP	
304	3-703-816-51	SCREW (M1.4X3.5), SPECIAL HEAD	
305	3-732-064-01	COVER, ROTOR	
306	3-728-126-01	SCREW (M1.4X2), SPECIAL HEAD	
307	3-728-108-01	SCREW (M1.4X4.5)	
308	3-728-148-11	SCREW (M1.4X2.5), SPECIAL HEAD	
309	X-3941-027-2	RAIL (BASE) (3) ASSY (3), GUIDE	
310	3-732-084-01	SCREW (M1.4), SPECIAL HEAD	
* 311	A-7040-222-D	BASE (M) BLOCK ASSY, DRUM	
312	X-3728-009-2	SCREW ASSY, FITTING	
313	3-743-633-01	SPRING, COMPRESSION	
314	3-728-119-01	RETAINER, GEAR	
315	X-3727-906-1	ARM ASSY	
316	X-3727-903-1	GEAR ASSY, NO. 1	
317	3-728-231-06	BASE, TG-1 CAM	
318	3-579-788-01	WASHER, STOPPER	
319	X-3727-915-1	GEAR ASSY, MODE	
320	X-3727-904-1	GEAR ASSY, NO. 2	
321	3-728-149-01	GEAR, NO. 0	
322	3-732-087-31	SCREW (M1.4X1.8), SPECIAL HEAD	
* 323	A-7040-203-G	BASE (A) BLOCK ASSY, DRUM	
324	3-727-809-02	SCREW (M1.4X5), HEXAGON HOLE	
325	3-727-807-03	SCREW (M1.7X3.3), HEXAGON HOLE	
326	3-728-108-41	SCREW (M1.4X2.7)	
327	A-7049-461-A	DRUM ASSY, UPPER ROTARY (DGR-80-R(1)) (COLOR MARK;GREEN, GREEN/RED, BLACK, BLACK/RED)	
327	A-7049-464-A	DRUM ASSY, UPPER ROTARY (DGR-80-R(2)) (COLOR MARK;RED, RED/RED, BLUE, BLUE/RED)	
329	A-7040-333-A	CHASSIS BLOCK ASSY (B) (INCLUDED ▲1)	
330	A-7049-219-A	MOTOR ASSY (Rotor)	
331	A-7049-564-A	MOTOR ASSY (Stator)	
M901	A-7048-660-A	DRUM BLOCK ASSY (DGH-80B-R)	
M902	8-835-329-12	MOTOR, DC U-21A (CAPSTAN)	
M903	1-541-607-21	MOTOR, DC (LA12G-344VA)	

5-7. MECHANISM CHASSIS ASSEMBLY (2)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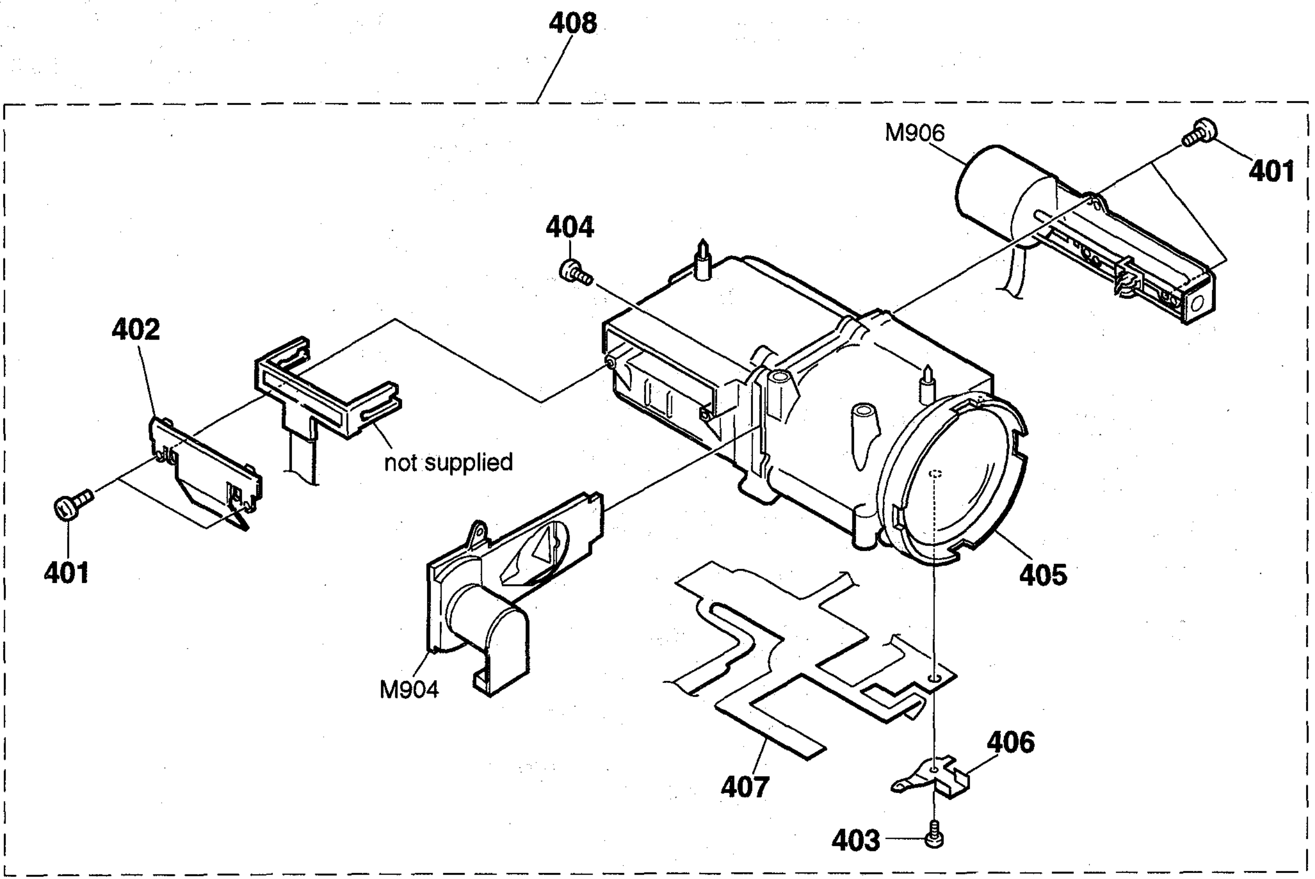
Ref. No.	Part No.	Description	Remarks
351	X-3727-930-3	GEAR ASSY, CONVERSION	
352	X-3727-931-1	PULLEY ASSY, MIDWAY	
353	3-728-212-01	BELT, RELAY	
354	3-728-091-01	WASHER, STOPPER	
355	3-728-154-01	ARM, EJ	
356	3-941-980-01	ARM (T), LS	
357	A-7040-152-A	ARM BLOCK ASSY, PINCH PRESS	
358	X-3940-335-1	ARM ASSY, PINCH PRESS	
359	3-728-065-01	SPRING, TENSION	
360	3-728-190-01	CAM (B)	
361	X-3727-924-2	ARM ASSY, GUIDE LOCK	
362	3-728-015-01	SPRING (POWER TENSION), TENSION	
363	3-728-228-03	SUPPORT (T), GL	
364	A-7040-153-A	SLIDER BLOCK ASSY, GL	
365	X-3941-931-1	SLIDER ASSY, GL	
366	3-727-927-01	SPRING (POWER TENSION), TENSION	
367	3-728-144-01	ROLLER, GL	
368	3-331-007-11	WASHER	
369	3-728-213-01	SUPPORT (S), GL	
370	3-728-109-01	ROLLER, LS	
371	3-728-148-11	SCREW (M1.4X2.5), SPECIAL HEAD	
372	3-315-384-31	WASHER, STOPPER	
373	3-942-925-01	CAM (A) (L)	
374	3-942-901-01	COVER (L), CAPSTAN	
375	3-743-634-01	SPACER, RUBBER	

5-8. LENS DEVICE ASSEMBLY (LSV-110A)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M904
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Ref. No.	Part No.	Description	Remarks
401	3-713-791-41	SCREW (M1.7X5), TAPPING, P2	
402	2-626-593-01	RETAINER, MR	
403	3-713-791-51	SCREW (M1.7X3.5), TAPPING, P2	
404	3-318-203-81	SCREW (B1.7X7), TAPPING	
405	A-4910-536-A	LSV-110A OPTICS ASS (RP)	
406	2-626-589-01	RETAINER, Z	
407	A-4910-534-A	FLEXIBLE BLOCK ASSY, M	
408	8-848-701-01	DEVICE, LENS LSV-110A	
M904	1-547-655-11	IRIS (IRX-003)	
M906	8-835-491-02	MOTOR, STEPING SPB-01S01N (ZOOM)	

SECTION 6
ELECTRICAL PARTS LIST

NOTE:

When indicating parts by reference number, please include the board name.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- CAPACITORS :
  uF : μF
- RESISTORS
  All resistors are in ohms.
  METAL : metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F : nonflammable
- COILS
  uH : μH
- SEMICONDUCTORS
  In each case, u : μ, for example :
  uA... : μA... , uPA... , μPA... ,
  uPB... , μPB... , uPC... , μPC... ,
  uPD..., μPD...

Ref. No.	Part No.	Description			Remarks
	A-7063-892-A	AU-154P BOARD, COMPLETE			
		************************			
			(Ref. No. 10, 000 Seriese)		
		< CAPACITOR >			
C801	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C802	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C803	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C804	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C805	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C806	1-135-163-21	TANTAL. CHIP	47uF	10%	4V
C807	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C808	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C809	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C810	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C811	1-126-204-11	ELECT CHIP	47uF	20%	16V
C812	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C813	1-135-211-11	TANTAL. CHIP	6.8uF	20%	6.3V
C814	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C815	1-135-163-21	TANTAL. CHIP	47uF	10%	4V
C816	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C817	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C818	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C819	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C820	1-135-091-91	TANTAL. CHIP	1uF	20%	16V
C821	1-135-091-91	TANTAL. CHIP	1uF	20%	16V
C822	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C823	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C824	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C825	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C826	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C827	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C828	1-135-148-21	TANTAL. CHIP	1.5uF	20%	10V
C829	1-135-148-21	TANTAL. CHIP	1.5uF	20%	10V
C832	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C833	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C834	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C835	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C836	1-164-676-11	CERAMIC CHIP	2200PF	5%	16V
C837	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C838	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C839	1-164-346-11	CERAMIC CHIP	1uF		16V
C840	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C841	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C842	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C843	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C844	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C845	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C846	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C848	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C849	1-135-162-21	TANTALUM CHIP	33uF	20%	6.3V
C850	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C852	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C854	1-162-969-11	CERAMIC CHIP	0.0068uF	10%	25V
C855	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C856	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
		< CONNECTOR >			
* CN801	1-750-909-11	CONNECTOR, BOARD TO BOARD 36P			
CN802	1-750-351-11	CONNECTOR, FFC/FPC (ZIF) 12P			
		< DIODE >			
D802	8-719-040-57	DIODE	015Z8.2-XY-TPH3		
D803	8-719-040-57	DIODE	015Z8.2-XY-TPH3		
D804	8-719-040-57	DIODE	015Z8.2-XY-TPH3		
D805	8-719-040-57	DIODE	015Z8.2-XY-TPH3		
D806	8-719-040-57	DIODE	015Z8.2-XY-TPH3		
D807	8-719-016-74	DIODE	1SS352		
D808	8-719-016-74	DIODE	1SS352		
D809	8-719-016-74	DIODE	1SS352		
D810	8-719-016-74	DIODE	1SS352		
D811	8-719-016-74	DIODE	1SS352		
		< FILTER >			
FL801	1-236-837-21	FILTER, BAND PASS			
FL802	1-236-838-21	FILTER, BAND PASS			
		< IC >			
IC801	8-759-159-94	IC	LA7491W-TBM		

Ref. No.	Part No.	Description	Remarks
L361	1-406-824-11	COIL, CHOKE 22uH	
L362	1-406-825-11	COIL, CHOKE 33uH	
L363	1-412-054-21	INDUCTOR CHIP 2.2uH	
L364	1-412-056-11	INDUCTOR CHIP 4.7uH	
L365	1-412-056-11	INDUCTOR CHIP 4.7uH	
L366	1-412-066-21	INDUCTOR CHIP 220uH	
L367	1-412-066-21	INDUCTOR CHIP 220uH	
L368	1-412-056-11	INDUCTOR CHIP 4.7uH	
L369	1-412-056-11	INDUCTOR CHIP 4.7uH	
L370	1-412-056-11	INDUCTOR CHIP 4.7uH	
L371	1-412-056-11	INDUCTOR CHIP 4.7uH	

< IC LINK >

Ref. No.	Part No.	Description	Remarks
⚠PS351	1-576-123-21	RINK, IC	
⚠PS352	1-576-122-21	RINK, IC	

< TRANSISTOR >

Ref. No.	Part No.	Description	Remarks
Q351	8-729-427-70	TRANSISTOR XP4401	
Q352	8-729-823-82	TRANSISTOR FP101	
Q353	8-729-823-82	TRANSISTOR FP101	
Q354	8-729-106-60	TRANSISTOR 2SB1115A	
Q355	8-729-823-84	TRANSISTOR FP102	
Q356	8-729-823-84	TRANSISTOR FP102	
Q357	8-729-823-82	TRANSISTOR FP101	
Q358	8-729-017-10	TRANSISTOR 2SJ244JY	
Q359	8-729-017-61	TRANSISTOR 2SB1581	
Q360	8-729-428-88	TRANSISTOR UN9113	
Q361	8-729-425-50	TRANSISTOR 2SB1462Q	
Q362	8-729-427-72	TRANSISTOR XP4501	
Q363	8-729-425-64	TRANSISTOR 2SD2216Q	
Q364	8-729-808-01	TRANSISTOR 2SD1622-S	

< RESISTOR >

Ref. No.	Part No.	Description	Remarks
R301	1-218-724-11	METAL CHIP 22K 0.50% 1/16W	
R302	1-218-724-11	METAL CHIP 22K 0.50% 1/16W	
R303	1-218-973-11	METAL GLAZE 47K 5% 1/16W	
R304	1-218-965-11	METAL GLAZE 10K 5% 1/16W	
R305	1-218-724-11	METAL CHIP 22K 0.50% 1/16W	
R306	1-218-724-11	METAL CHIP 22K 0.50% 1/16W	
R312	1-216-822-11	METAL CHIP 1.2K 5% 1/16W	
R313	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R314	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R315	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R316	1-216-822-11	METAL CHIP 1.2K 5% 1/16W	
R317	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R318	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R319	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R320	1-218-965-11	METAL GLAZE 10K 5% 1/16W	
R321	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R351	1-218-969-11	METAL GLAZE 22K 5% 1/16W	
R352	1-218-707-11	METAL CHIP 4.3K 0.50% 1/16W	
R353	1-218-974-11	METAL GLAZE 56K 5% 1/16W	
R354	1-218-969-11	METAL GLAZE 22K 5% 1/16W	
R355	1-218-973-11	METAL GLAZE 47K 5% 1/16W	
R356	1-218-972-11	METAL GLAZE 39K 5% 1/16W	
R357	1-218-973-11	METAL GLAZE 47K 5% 1/16W	
R360	1-218-720-11	METAL CHIP 15K 0.50% 1/16W	
R361	1-218-736-11	METAL CHIP 68K 0.50% 1/16W	
R362	1-218-714-11	METAL CHIP 8.2K 0.50% 1/16W	
R363	1-218-966-11	METAL GLAZE 12K 5% 1/16W	
R364	1-218-721-11	METAL CHIP 16K 0.50% 1/16W	
R365	1-218-979-11	METAL GLAZE 150K 5% 1/16W	
R366	1-218-977-11	METAL GLAZE 100K 5% 1/16W	
R367	1-218-962-11	METAL GLAZE 5.6K 5% 1/16W	
R368	1-218-964-11	METAL GLAZE 8.2K 5% 1/16W	
R369	1-218-730-11	METAL CHIP 39K 0.50% 1/16W	
R370	1-218-975-11	METAL GLAZE 68K 5% 1/16W	
R371	1-218-975-11	METAL GLAZE 68K 5% 1/16W	
R372	1-218-724-11	METAL CHIP 22K 0.50% 1/16W	
R373	1-218-727-11	METAL CHIP 30K 0.50% 1/16W	
R374	1-218-873-11	METAL CHIP 12K 0.50% 1/16W	
R375	1-218-720-11	METAL CHIP 15K 0.50% 1/16W	
R376	1-218-975-11	METAL GLAZE 68K 5% 1/16W	
R377	1-218-975-11	METAL GLAZE 68K 5% 1/16W	
R378	1-218-964-11	METAL GLAZE 8.2K 5% 1/16W	
R379	1-218-710-11	METAL CHIP 5.6K 0.50% 1/16W	
R380	1-218-990-11	METAL GLAZE 0 5% 1/16W	
R381	1-218-990-11	METAL GLAZE 0 5% 1/16W	
R382	1-218-990-11	METAL GLAZE 0 5% 1/16W	
R383	1-218-951-11	METAL GLAZE 680 5% 1/16W	
R384	1-218-720-11	METAL CHIP 15K 0.50% 1/16W	
R387	1-218-704-11	METAL CHIP 3.3K 0.50% 1/16W	
R388	1-218-945-11	METAL GLAZE 220 5% 1/16W	
R389	1-218-945-11	METAL GLAZE 220 5% 1/16W	
R390	1-218-977-11	METAL GLAZE 100K 5% 1/16W	
R391	1-218-949-11	METAL GLAZE 470 5% 1/16W	
R392	1-218-949-11	METAL GLAZE 470 5% 1/16W	
R393	1-218-949-11	METAL GLAZE 470 5% 1/16W	
R394	1-218-949-11	METAL GLAZE 470 5% 1/16W	
R395	1-218-933-11	METAL GLAZE 22 5% 1/16W	
R396	1-218-977-11	METAL GLAZE 100K 5% 1/16W	
R397	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R398	1-218-960-11	METAL GLAZE 3.9K 5% 1/16W	
R399	1-218-973-11	METAL GLAZE 47K 5% 1/16W	

< VARIABLE RESISTOR >

Ref. No.	Part No.	Description	Remarks
RV301	1-223-491-21	RES, VAR (ZOOM/SELF RETURN) 100K (T/W)	

< TRANSFORMER >

Ref. No.	Part No.	Description	Remarks
T351	1-450-976-11	TRANSFORMER, CONVERTER	

< FLAT CABLE >

Ref. No.	Part No.	Description	Remarks
W352	1-649-179-11	FP-19 FLEXIBLE BOARD	

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Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description			Remarks
	A-7071-964-A	EZ-12P BOARD, COMPLETE			
		**********************			
			(Ref.No.14,000 Seriese)		
		< CAPACITOR >			
C101	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C104	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C151	1-162-960-11	CERAMIC CHIP	220PF	10%	50V
C152	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C153	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C154	1-135-210-11	TANTALUM CHIP	4.7uF	20%	10V
C155	1-135-210-11	TANTALUM CHIP	4.7uF	20%	10V
C156	1-165-112-11	CERAMIC CHIP	0.33uF		16V
C161	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C180	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C181	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C182	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C183	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
		< CONNECTOR >			
CN111	1-580-789-21	PIN, CONNECTOR (SMD) 6P			
CN112	1-573-927-11	CONNECTOR, FFC/FPC (ZIF) 18P			
CN113	1-537-439-11	TARMINAL BOARD, CONNECTOR			
		< DIODE >			
D101	8-719-040-57	DIODE	015Z8.2-XY-TPH3		
D102	8-719-040-57	DIODE	015Z8.2-XY-TPH3		
D103	8-719-040-57	DIODE	015Z8.2-XY-TPH3		
D104	8-719-040-57	DIODE	015Z8.2-XY-TPH3		
D105	8-719-040-57	DIODE	015Z8.2-XY-TPH3		
D106	8-719-040-57	DIODE	015Z8.2-XY-TPH3		
D107	8-719-040-57	DIODE	015Z8.2-XY-TPH3		
D108	8-719-040-57	DIODE	015Z8.2-XY-TPH3		
D112	8-719-040-57	DIODE	015Z8.2-XY-TPH3		
D113	8-719-040-57	DIODE	015Z8.2-XY-TPH3		
D114	8-719-016-74	DIODE	1SS352		
D115	8-719-040-57	DIODE	015Z8.2-XY-TPH3		
D120	8-719-040-57	DIODE	015Z8.2-XY-TPH3		
D121	8-719-040-57	DIODE	015Z8.2-XY-TPH3		
D122	8-719-040-57	DIODE	015Z8.2-XY-TPH3		
D123	8-719-040-57	DIODE	015Z8.2-XY-TPH3		
D124	8-719-040-57	DIODE	015Z8.2-XY-TPH3		
D125	8-719-040-57	DIODE	015Z8.2-XY-TPH3		
D126	8-719-040-57	DIODE	015Z8.2-XY-TPH3		
D127	8-719-040-57	DIODE	015Z8.2-XY-TPH3		
D128	8-719-040-57	DIODE	015Z8.2-XY-TPH3		
D131	8-719-040-13	DIODE	015Z3.3-X-TPH3		
D132	8-719-016-74	DIODE	1SS352		
D180	8-719-016-74	DIODE	1SS352		
D181	8-719-421-27	DIODE	MA728		
D182	8-719-421-27	DIODE	MA728		

Ref. No.	Part No.	Description			Remarks
		< IC >			
IC101	8-759-998-92	IC	LM393D		
		< COIL >			
L161	1-414-117-11	INDUCTOR 1uH			
		< TRANSISTOR >			
Q100	8-729-429-18	TRANSISTOR	UN9213		
Q101	8-729-425-50	TRANSISTOR	2SB1462Q		
Q102	8-729-428-88	TRANSISTOR	UN9113		
Q103	8-729-429-18	TRANSISTOR	UN9213		
Q104	8-729-425-50	TRANSISTOR	2SB1462Q		
Q108	8-729-429-06	TRANSISTOR	UN911E		
Q109	8-729-429-18	TRANSISTOR	UN9213		
Q110	8-729-429-18	TRANSISTOR	UN9213		
Q111	8-729-425-50	TRANSISTOR	2SB1462Q		
Q113	8-729-428-88	TRANSISTOR	UN9113		
Q114	8-729-429-18	TRANSISTOR	UN9213		
Q115	8-729-429-18	TRANSISTOR	UN9213		
Q140	8-729-425-50	TRANSISTOR	2SB1462Q		
Q151	8-729-425-73	TRANSISTOR	2SC4627-C		
Q152	8-729-425-50	TRANSISTOR	2SB1462Q		
Q153	8-729-425-50	TRANSISTOR	2SB1462Q		
Q154	8-729-425-50	TRANSISTOR	2SB1462Q		
Q155	8-729-429-18	TRANSISTOR	UN9213		
Q156	8-729-429-18	TRANSISTOR	UN9213		
Q161	8-729-427-70	TRANSISTOR	XP4401		
Q162	8-729-101-07	TRANSISTOR	2SB798-DL		
Q180	8-729-429-18	TRANSISTOR	UN9213		
Q181	8-729-808-01	TRANSISTOR	2SD1622-S		
Q182	8-729-425-73	TRANSISTOR	2SC4627-C		
Q183	8-729-425-50	TRANSISTOR	2SB1462Q		
Q184	8-729-429-18	TRANSISTOR	UN9213		
Q185	8-729-429-18	TRANSISTOR	UN9213		
		< RESISTOR >			
R101	1-218-985-11	METAL GLAZE	470K	5%	1/16W
R102	1-218-985-11	METAL GLAZE	470K	5%	1/16W
R103	1-218-945-11	METAL GLAZE	220	5%	1/16W
R104	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R105	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R107	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R108	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R109	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R110	1-218-971-11	METAL GLAZE	33K	5%	1/16W
R111	1-218-989-11	METAL GLAZE	1M	5%	1/16W
R114	1-216-845-11	METAL CHIP	100K	5%	1/16W
R115	1-216-844-11	METAL CHIP	82K	5%	1/16W
R116	1-216-806-11	METAL GLAZE	56	5%	1/16W
R117	1-216-864-11	METAL CHIP	0	5%	1/16W
R118	1-216-811-11	METAL CHIP	150	5%	1/16W

Ref. No.	Part No.	Description			Remarks
R120	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R122	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R123	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R124	1-216-835-11	METAL CHIP	15K	5%	1/16W
R130	1-218-971-11	METAL GLAZE	33K	5%	1/16W
R134	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R146	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R151	1-218-692-11	METAL CHIP	1K	0.50%	1/16W
R152	1-218-692-11	METAL CHIP	1K	0.50%	1/16W
R153	1-218-947-11	METAL GLAZE	330	5%	1/16W
R154	1-218-692-11	METAL CHIP	1K	0.50%	1/16W
R155	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R156	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W
R157	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W
R158	1-218-959-11	METAL GLAZE	3.3K	5%	1/16W
R159	1-218-959-11	METAL GLAZE	3.3K	5%	1/16W
R161	1-218-954-11	METAL GLAZE	1.2K	5%	1/16W
R162	1-218-963-11	METAL GLAZE	6.8K	5%	1/16W
R163	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W
R164	1-216-791-11	METAL CHIP	3.3	5%	1/16W
R165	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R166	1-218-945-11	METAL GLAZE	220	5%	1/16W
R167	1-218-945-11	METAL GLAZE	220	5%	1/16W
R168	1-218-989-11	METAL GLAZE	1M	5%	1/16W
R169	1-218-989-11	METAL GLAZE	1M	5%	1/16W
R170	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R171	1-218-941-11	METAL GLAZE	100	5%	1/16W
R172	1-218-941-11	METAL GLAZE	100	5%	1/16W
R180	1-216-296-91	METAL GLAZE	0	5%	1/8W
R181	1-216-296-91	METAL GLAZE	0	5%	1/8W
R187	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R188	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R189	1-216-799-11	METAL CHIP	15	5%	1/16W
R190	1-218-974-11	METAL GLAZE	56K	5%	1/16W
R191	1-218-985-11	METAL GLAZE	470K	5%	1/16W
R192	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R193	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R194	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R195	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R196	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R197	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R198	1-218-977-11	METAL GLAZE	100K	5%	1/16W

< FLAT CABLE >

W114	1-649-180-11	FP-20 FLEXIBLE BOARD

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A-7071-969-A FD-49P BOARD, COMPLETE

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(Ref.No. 4,000 Seriese)

< CAPACITOR >

Ref. No.	Part No.	Description			Remarks
C901	1-135-217-21	TANTALUM CHIP	15uF	20%	6.3V
C902	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C903	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C905	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C906	1-135-217-21	TANTALUM CHIP	15uF	20%	6.3V
C907	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C908	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C909	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C910	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C911	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C912	1-135-156-21	TANTALUM CHIP	6.8uF	10%	10V
C913	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C914	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C915	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C916	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C917	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C918	1-135-216-11	TANTALUM CHIP	10uF	20%	10V
C940	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C941	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C955	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C959	1-164-816-11	CERAMIC CHIP	220PF	2%	50V

< CONNECTOR >

CN901	1-750-341-11	CONNECTOR, FFC/EPC (ZIF) 18P
CN902	1-750-344-11	CONNECTOR, FFC/EPC (ZIF) 24P

< DIODE >

D901	8-719-027-45	DIODE	MA740
⚠D902	8-719-421-27	DIODE	MA728
D910	8-719-040-57	DIODE	015Z8.2-XY-TPH3
D911	8-719-040-57	DIODE	015Z8.2-XY-TPH3

< IC >

⚠IC901	8-759-099-91	IC	S-8420JF
IC902	8-759-257-71	IC	MB89092PFV-G-144A-BN
IC903	8-759-059-05	IC	TL1596CPW

< COIL >

L901	1-414-120-11	INDUCTOR 47uH

< TRANSISTOR >

Q901	8-729-402-84	TRANSISTOR	XN4601

< RESISTOR >

R901	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R902	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R903	1-218-738-11	METAL CHIP	82K	0.50%	1/16W

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description			Remarks
R904	1-218-744-11	METAL CHIP	150K	0.50%	1/16W
R905	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R906	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R907	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R908	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R909	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R910	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R911	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R912	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R913	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R914	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R915	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R916	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R917	1-218-989-11	METAL GLAZE	1M	5%	1/16W
R918	1-218-989-11	METAL GLAZE	1M	5%	1/16W
R919	1-218-949-11	METAL GLAZE	470	5%	1/16W
R920	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R921	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R922	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R923	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R924	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R925	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R926	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R927	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R928	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R929	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R931	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R933	1-218-985-11	METAL GLAZE	470K	5%	1/16W
R935	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R936	1-218-985-11	METAL GLAZE	470K	5%	1/16W
R937	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R938	1-218-983-11	METAL GLAZE	330K	5%	1/16W
R939	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R940	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R941	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R942	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R944	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R947	1-218-702-11	METAL CHIP	2.7K	0.50%	1/16W
R948	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R949	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R950	1-218-941-11	METAL GLAZE	100	5%	1/16W
R951	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R952	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R953	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R954	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R955	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R956	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R957	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R958	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R959	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R960	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R961	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R962	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R963	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R964	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R965	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R966	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R967	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R968	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R969	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R972	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R973	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R974	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R979	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R980	1-218-990-11	METAL GLAZE	0	5%	1/16W
R981	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R982	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R983	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R984	1-218-990-11	METAL GLAZE	0	5%	1/16W
R987	1-218-990-11	METAL GLAZE	0	5%	1/16W
R988	1-218-990-11	METAL GLAZE	0	5%	1/16W
R989	1-218-990-11	METAL GLAZE	0	5%	1/16W
R996	1-218-951-11	METAL GLAZE	680	5%	1/16W

< FLAT CABLE >

W901	1-649-181-11	FP-21 FLEXIBLE BOARD

< VIBRATOR >

X901	1-579-550-11	VIBRATOR, CRYSTAL 31KHz
XTL901	1-579-369-21	VIBRATOR

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A-7071-971-A FF-77P BOARD, COMPLETE

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(Ref.No. 8,000 Seriese)

< CONNECTOR >

CN954	1-568-327-11	CONNECTOR, BOARD TO BOARD 8P

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A-7062-792-A FP-423 BLOCK ASSY (FLEXIBLE)

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(Ref.No. 16,000 Series)

	3-727-954-01	HOLDER (T), SENSOR
	3-727-957-01	HOLDER (S), SENSOR
	3-732-046-01	HOLDER, LED

< DIODE >

D991	8-719-988-42	DIODE GL453S

< HOLE ELEMENT >

H991	1-808-448-11	ELEMENT, HALL (CHIP TYPE)
H992	1-808-448-11	ELEMENT, HALL (CHIP TYPE)

< TRANSISTOR >

Ref. No.	Part No.	Description	Remarks
Q991	8-729-907-25	TRANSISTOR PT4850F	
Q992	8-729-907-25	TRANSISTOR PT4850F	

< RESISTOR >

R991	1-216-817-11	METAL CHIP 470 5% 1/16W	
R992	1-216-817-11	METAL CHIP 470 5% 1/16W	
R993	1-216-817-11	METAL CHIP 470 5% 1/16W	
R994	1-216-817-11	METAL CHIP 470 5% 1/16W	

< SWITCH >

S991	1-572-611-11	SWITCH, LEAF (CASSETE LOCK)	
S992	1-572-802-12	SWITCH, PUSH (3 KEY) (REC PROOF, ME/MP, Hi8 MP)	

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A-7071-968-A FU-122P BOARD, COMPLETE
****
(Ref. No. 12,000 Seriese)

< CAPACITOR >

C981	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C982	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C983	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	

< CONNECTOR >

CN981	1-580-789-21	PIN, CONNECTOR (SMD) 6P	
CN982	1-580-789-21	PIN, CONNECTOR (SMD) 6P	

< IC LINK >

⚠PS981	1-533-283-21	RINK, CHIP IC	
⚠PS982	1-533-283-21	RINK, CHIP IC	
⚠PS983	1-533-283-21	RINK, CHIP IC	

< TRANSISTOR >

Q981	8-729-024-24	TRANSISTOR 2SK2154-TL	
Q982	8-729-024-24	TRANSISTOR 2SK2154-TL	

< RESISTOR >

R981	1-218-977-11	METAL GLAZE 100K 5% 1/16W	

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A-7071-963-A KA-3P BOARD, COMPLETE
****
(Ref. No. 17,000 Seriese)

< CAPACITOR >

C735	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C736	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C737	1-162-916-11	CERAMIC CHIP 12PF 5% 50V	

< IC >

Ref. No.	Part No.	Description	Remarks
IC735	8-759-926-24	IC SN74HC164ANS	
IC736	8-759-234-77	IC TC4S66F	

< TRANSISTOR >

Q735	8-729-120-28	TRANSISTOR 2SC1623-L5L6	

< RESISTOR >

R736	1-216-864-11	METAL CHIP 0 5% 1/16W	
R737	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R738	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R739	1-216-864-11	METAL CHIP 0 5% 1/16W	
R740	1-216-822-11	METAL CHIP 1.2K 5% 1/16W	

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A-7071-967-A LD-73P BOARD, COMPLETE
****
(Ref. No. 11,000 Seriese)

< CAPACITOR >

C751	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C752	1-135-181-21	TANTALUM CHIP 4.7uF 20% 6.3V	
C753	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C754	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C755	1-164-634-11	CERAMIC CHIP 1uF 16V	
C756	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C757	1-135-181-21	TANTALUM CHIP 4.7uF 20% 6.3V	
C758	1-135-181-21	TANTALUM CHIP 4.7uF 20% 6.3V	
C759	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C760	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C761	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C762	1-126-205-11	ELECT CHIP 47uF 20% 6.3V	
C763	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C764	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C766	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C767	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C768	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C769	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C771	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C772	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C773	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C775	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C776	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C777	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C778	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C779	1-162-968-11	CERAMIC CHIP 0.0047uF 10% 50V	
C780	1-162-968-11	CERAMIC CHIP 0.0047uF 10% 50V	
C781	1-162-968-11	CERAMIC CHIP 0.0047uF 10% 50V	

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

< CONNECTOR >

Ref. No.	Part No.	Description	Remarks
CN751	1-573-366-21	CONNECTOR, FFC/FPC 26P	
CN752	1-691-539-11	CONNECTOR, BOARD TO BOARD 30P	

< IC >

Ref. No.	Part No.	Description	Remarks
IC751	8-752-844-68	IC CXP80624A-022R	
IC752	8-752-355-56	IC CXD2104BN	
IC753	8-759-058-45	IC NJM3403AV	
IC754	8-759-058-41	IC NJM3416V	
IC755	8-759-059-03	IC LM324PW	
IC756	8-759-058-43	IC NJM3404AV	
IC757	8-759-058-41	IC NJM3416V	
IC758	8-759-058-47	IC MPC1724VM	

< COIL >

Ref. No.	Part No.	Description	Remarks
L751	1-414-078-11	INDUCTOR 10uH	
L753	1-414-078-11	INDUCTOR 10uH	
L754	1-414-078-11	INDUCTOR 10uH	
L755	1-414-078-11	INDUCTOR 10uH	
L756	1-412-991-11	INDUCTOR 10uH	

< TRANSISTOR >

Ref. No.	Part No.	Description	Remarks
Q751	8-729-428-88	TRANSISTOR UN9113	
Q752	8-729-425-64	TRANSISTOR 2SD2216Q	

< RESISTOR >

Ref. No.	Part No.	Description			Remarks
R751	1-218-990-11	METAL GLAZE	0	5%	1/16W
R752	1-218-989-11	METAL GLAZE	1M	5%	1/16W
R753	1-218-875-11	METAL CHIP	15K	0.50%	1/16W
R754	1-218-875-11	METAL CHIP	15K	0.50%	1/16W
R755	1-218-835-11	METAL GLAZE	330	0.50%	1/16W
R756	1-218-835-11	METAL GLAZE	330	0.50%	1/16W
R757	1-218-967-11	METAL GLAZE	15K	5%	1/16W
R758	1-218-971-11	METAL GLAZE	33K	5%	1/16W
R759	1-218-971-11	METAL GLAZE	33K	5%	1/16W
R760	1-218-835-11	METAL GLAZE	330	0.50%	1/16W
R761	1-218-875-11	METAL CHIP	15K	0.50%	1/16W
R762	1-218-959-11	METAL GLAZE	3.3K	5%	1/16W
R763	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R764	1-218-983-11	METAL GLAZE	330K	5%	1/16W
R765	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R766	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R767	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R768	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R769	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R770	1-218-980-11	METAL GLAZE	180K	5%	1/16W
R771	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R772	1-218-980-11	METAL GLAZE	180K	5%	1/16W
R773	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R774	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R775	1-218-974-11	METAL GLAZE	56K	5%	1/16W
R776	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R777	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R778	1-218-987-11	METAL GLAZE	680K	5%	1/16W
R779	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R780	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R781	1-218-989-11	METAL GLAZE	1M	5%	1/16W
R782	1-218-975-11	METAL GLAZE	68K	5%	1/16W
R783	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R784	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R785	1-218-952-11	METAL GLAZE	820	5%	1/16W
R786	1-218-989-11	METAL GLAZE	1M	5%	1/16W
R787	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R788	1-218-958-11	METAL GLAZE	2.7K	5%	1/16W
R789	1-218-989-11	METAL GLAZE	1M	5%	1/16W
R790	1-218-989-11	METAL GLAZE	1M	5%	1/16W
R791	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R792	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R793	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R794	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R796	1-218-990-11	METAL GLAZE	0	5%	1/16W
R797	1-218-989-11	METAL GLAZE	1M	5%	1/16W

< CONPOSITION CIRCUIT BLOCK >

Ref. No.	Part No.	Description	Remarks
RB751	1-236-428-11	NETWORK, RES 22K	
RB752	1-236-424-11	NETWORK, RES 10K	
RB754	1-236-432-11	NETWORK, RES 47K	

< VIBRATOR >

Ref. No.	Part No.	Description	Remarks
X751	1-579-553-11	VIBRATOR 12MHz	

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A-7071-974-A MA-217P BOARD, COMPLETE
****
(Ref.No.9,000 Seriese)

< CAPACITOR >

Ref. No.	Part No.	Description			Remarks
C001	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C002	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C003	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C004	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C005	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C006	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C007	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C008	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C009	1-135-091-91	TANTAL. CHIP	1uF	20%	16V
C010	1-135-091-91	TANTAL. CHIP	1uF	20%	16V
C011	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C012	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C013	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C014	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C015	1-164-182-11	CERAMIC CHIP	0.0033uF	10%	50V

MA-217P SE-34P

Ref. No.	Part No.	Description			Remarks
C016	1-164-245-11	CERAMIC CHIP	0.015uF	10%	25V
C017	1-164-245-11	CERAMIC CHIP	0.015uF	10%	25V
C018	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C019	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C020	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C021	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C022	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C023	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C024	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C029	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C031	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C032	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C034	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C035	1-164-360-11	CERAMIC CHIP	0.1uF		16V

< CONNECTOR >

Ref. No.	Part No.	Description
CN021	1-573-352-11	CONNECTOR, FFC/FPC 12P
* CN022	1-580-055-21	PIN, CONNECTOR 2P
* CN023	1-580-055-21	PIN, CONNECTOR 2P

< DIODE >

Ref. No.	Part No.	Description	
D001	8-719-016-74	DIODE	1SS352
D002	8-719-040-57	DIODE	015Z8.2-XY-TPH3
D003	8-719-040-57	DIODE	015Z8.2-XY-TPH3
D004	8-719-040-57	DIODE	015Z8.2-XY-TPH3
D005	8-719-040-57	DIODE	015Z8.2-XY-TPH3
D006	8-719-016-74	DIODE	1SS352
D007	8-719-951-20	LED	BR1102W

< IC >

Ref. No.	Part No.	Description	
IC001	8-759-084-53	IC	CXA1618AN
IC002	8-749-923-29	IC	RS-20E-T

< JACK >

Ref. No.	Part No.	Description
J001	1-691-737-11	JACK (SMALL TYPE) (MIC JACK)

< COIL >

Ref. No.	Part No.	Description	
L001	1-414-118-11	INDUCTOR	4.7uH

< TRANSISTOR >

Ref. No.	Part No.	Description	
Q001	8-729-425-64	TRANSISTOR	2SD2216Q

< RESISTOR >

Ref. No.	Part No.	Description			Remarks
R001	1-218-952-11	METAL GLAZE	820	5%	1/16W
R002	1-218-952-11	METAL GLAZE	820	5%	1/16W
R003	1-220-184-11	METAL GLAZE	1.3K	5%	16W
R004	1-220-184-11	METAL GLAZE	1.3K	5%	16W
R005	1-218-963-11	METAL GLAZE	6.8K	5%	1/16W
R006	1-218-963-11	METAL GLAZE	6.8K	5%	1/16W
R008	1-218-963-11	METAL GLAZE	6.8K	5%	1/16W
R009	1-218-963-11	METAL GLAZE	6.8K	5%	1/16W
R010	1-218-967-11	METAL GLAZE	15K	5%	1/16W
R011	1-218-967-11	METAL GLAZE	15K	5%	1/16W
R012	1-218-990-11	METAL GLAZE	0	5%	1/16W
R013	1-218-966-11	METAL GLAZE	12K	5%	1/16W
R014	1-218-967-11	METAL GLAZE	15K	5%	1/16W
R015	1-216-295-00	METAL CHIP	0	5%	1/10W
R016	1-218-967-11	METAL GLAZE	15K	5%	1/16W
R017	1-216-295-00	METAL CHIP	0	5%	1/10W
R018	1-218-966-11	METAL GLAZE	12K	5%	1/16W
R019	1-218-990-11	METAL GLAZE	0	5%	1/16W
R020	1-218-971-11	METAL GLAZE	33K	5%	1/16W
R021	1-218-971-11	METAL GLAZE	33K	5%	1/16W
R022	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R023	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R024	1-218-964-11	METAL GLAZE	8.2K	5%	1/16W
R025	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R026	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R027	1-218-964-11	METAL GLAZE	8.2K	5%	1/16W
R028	1-216-864-11	METAL CHIP	0	5%	1/16W
R029	1-216-864-11	METAL CHIP	0	5%	1/16W
R030	1-216-864-11	METAL CHIP	0	5%	1/16W
R031	1-218-990-11	METAL GLAZE	0	5%	1/16W
R032	1-218-951-11	METAL GLAZE	680	5%	1/16W

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A-7071-966-A SE-34P BOARD, COMPLETE

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(Ref.No.3,000 Seriese)

< CAPACITOR >

Ref. No.	Part No.	Description			Remarks
C203	1-135-161-21	TANTALUM CHIP	22uF	10%	10V
C204	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V
C205	1-164-299-11	CERAMIC CHIP	0.22uF	10%	25V
C206	1-164-245-11	CERAMIC CHIP	0.015uF	10%	25V
C207	1-128-257-21	ELECT CHIP	33uF	20%	10V
C208	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C209	1-164-336-11	CERAMIC CHIP	0.33uF		25V
C210	1-128-257-21	ELECT CHIP	33uF	20%	10V
C211	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C212	1-164-336-11	CERAMIC CHIP	0.33uF		25V
C213	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C214	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C216	1-135-163-21	TANTAL. CHIP	47uF	20%	4V
C217	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C220	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V
C221	1-164-245-11	CERAMIC CHIP	0.015uF	10%	25V
C222	1-164-299-11	CERAMIC CHIP	0.22uF	10%	25V
C251	1-135-161-21	TANTALUM CHIP	22uF	10%	10V
C255	1-135-163-21	TANTAL. CHIP	47uF	20%	4V
C256	1-164-360-11	CERAMIC CHIP	0.1uF		16V

< CONNECTOR >

Ref. No.	Part No.	Description			Remarks
CN211	1-573-347-11	CONNECTOR, FFC/FPC 7P			

< IC >

Ref. No.	Part No.	Description			Remarks
IC201	8-759-080-34	IC	TA75W01FU		
IC202	8-759-234-77	IC	TC4S66F		
IC203	8-759-058-45	IC	NJM3403AV		
IC204	8-759-234-77	IC	TC4S66F		

< RESISTOR >

Ref. No.	Part No.	Description			Remarks
R201	1-218-935-11	METAL GLAZE	33	5%	1/16W
R202	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R203	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R204	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R205	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R206	1-208-846-91	METAL GLAZE	470K	0.50%	1/10W
R207	1-208-846-91	METAL GLAZE	470K	0.50%	1/10W
R208	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R209	1-218-967-11	METAL GLAZE	15K	5%	1/16W
R210	1-218-982-11	METAL GLAZE	270K	5%	1/16W
R211	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R212	1-208-846-91	METAL GLAZE	470K	0.50%	1/10W
R213	1-208-846-91	METAL GLAZE	470K	0.50%	1/10W
R214	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R215	1-218-967-11	METAL GLAZE	15K	5%	1/16W
R216	1-218-982-11	METAL GLAZE	270K	5%	1/16W
R220	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R221	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R222	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R251	1-218-935-11	METAL GLAZE	33	5%	1/16W

< SWITCH >

Ref. No.	Part No.	Description			Remarks
SW201	1-692-088-41	SWITHC, TACTILE (EJECT)			

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A-7063-893-A VC-137P BOARD, COMPLETE
****
(Ref.No.2,000 Seriese)

Ref. No.	Part No.	Description			Remarks
*	3-949-011-01	CASE (A), SHIELD, RP			
*	3-949-023-01	CASE (B), SHIELD, RP			

< CAPACITOR >

Ref. No.	Part No.	Description			Remarks
C001	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C002	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C003	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C004	1-162-926-11	CERAMIC CHIP	82PF	5%	50V
C005	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C006	1-164-217-11	CERAMIC CHIP	150PF	5%	50V
C008	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C009	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C010	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C011	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C012	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C013	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C014	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C015	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C016	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C017	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C018	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C019	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C020	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C021	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C022	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C023	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C026	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C027	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C028	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C030	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C031	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C032	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C033	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C034	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C035	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C036	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C037	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C039	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C041	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C042	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C043	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C044	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C045	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C046	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C047	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C048	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C049	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C050	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C051	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C052	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C053	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C054	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C055	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C056	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C057	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C058	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C059	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C060	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C061	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C062	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C063	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C064	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C065	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C066	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C071	1-135-208-11	TANTAL. CHIP	1uF	20%	10V
C072	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V

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Ref. No.	Part No.	Description			Remarks
C073	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C074	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C075	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C077	1-135-211-11	TANTAL. CHIP	6.8uF	20%	6.3V
C078	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C079	1-164-462-11	CERAMIC CHIP	110PF	5%	50V
C080	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C081	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C082	1-162-959-11	CERAMIC CHIP	330PF	5%	50V
C083	1-162-959-11	CERAMIC CHIP	330PF	5%	50V
C084	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C085	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C086	1-162-947-11	CERAMIC CHIP	33PF	5%	50V
C087	1-162-910-11	CERAMIC CHIP	5PF	0.25PF	50V
C101	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C103	1-162-928-11	CERAMIC CHIP	120PF	5%	50V
C104	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C106	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C107	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C108	1-164-384-11	CERAMIC CHIP	130PF	5%	50V
C109	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C110	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C111	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C112	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C113	1-162-925-11	CERAMIC CHIP	68PF	5%	50V
C114	1-162-925-11	CERAMIC CHIP	68PF	5%	50V
C116	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C117	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C118	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C119	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C120	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C121	1-164-392-11	CERAMIC CHIP	390PF	5%	50V
C123	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C124	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C126	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C127	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C128	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C129	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C130	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C132	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C134	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C137	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C138	1-162-918-11	CERAMIC CHIP	18PF	5%	50V
C140	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C142	1-162-912-11	CERAMIC CHIP	7PF	0.5PF	50V
C144	1-164-238-11	CERAMIC CHIP	36PF	5%	50V
C148	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C149	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C150	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C152	1-162-910-11	CERAMIC CHIP	5PF	0.25PF	50V
C153	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C154	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V

Ref. No.	Part No.	Description			Remarks
C155	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C156	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C157	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C158	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C159	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C160	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C161	1-162-925-11	CERAMIC CHIP	68PF	5%	50V
C162	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C163	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C164	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C165	1-162-958-11	CERAMIC CHIP	270PF	5%	50V
C166	1-164-379-11	CERAMIC CHIP	43PF	5%	50V
C167	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C168	1-162-958-11	CERAMIC CHIP	270PF	5%	50V
C169	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C170	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C171	1-162-976-11	CERAMIC CHIP	75PF	5%	50V
C172	1-162-910-11	CERAMIC CHIP	5PF	0.25PF	50V
C173	1-162-948-11	CERAMIC CHIP	39PF	5%	50V
C175	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C176	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C177	1-162-910-11	CERAMIC CHIP	5PF	0.25PF	50V
C201	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C202	1-162-918-11	CERAMIC CHIP	18PF	5%	50V
C203	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C204	1-164-346-11	CERAMIC CHIP	1uF		16V
C205	1-164-346-11	CERAMIC CHIP	1uF		16V
C206	1-164-346-11	CERAMIC CHIP	1uF		16V
C208	1-162-969-11	CERAMIC CHIP	0.0068uF	10%	25V
C209	1-162-969-11	CERAMIC CHIP	0.0068uF	10%	25V
C211	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C212	1-162-995-11	CERAMIC CHIP	0.022uF		50V
C213	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C215	1-162-965-11	CERAMIC CHIP	0.0015uF	10%	50V
C216	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C217	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C218	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C219	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C220	1-164-346-11	CERAMIC CHIP	1uF		16V
C221	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C222	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C223	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C224	1-164-346-11	CERAMIC CHIP	1uF		16V
C225	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C226	1-162-995-11	CERAMIC CHIP	0.022uF		50V
C227	1-162-995-11	CERAMIC CHIP	0.022uF		50V
C228	1-162-995-11	CERAMIC CHIP	0.022uF		50V
C229	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C230	1-164-346-11	CERAMIC CHIP	1uF		16V
C231	1-164-173-11	CERAMIC CHIP	0.0039uF	10%	50V
C232	1-164-346-11	CERAMIC CHIP	1uF		16V

Ref. No.	Part No.	Description			Remarks
C233	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C234	1-164-346-11	CERAMIC CHIP	1uF		16V
C237	1-162-955-11	CERAMIC CHIP	150PF	5%	50V
C238	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C239	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C240	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C241	1-135-091-91	TANTAL. CHIP	1uF	20%	16V
C242	1-135-091-91	TANTAL. CHIP	1uF	20%	16V
C243	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C244	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C245	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C246	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C247	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C248	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C250	1-164-346-11	CERAMIC CHIP	1uF		16V
C251	1-162-910-11	CERAMIC CHIP	5PF	0.25PF	50V
C252	1-164-346-11	CERAMIC CHIP	1uF		16V
C254	1-135-070-00	TANTALUM CHIP	0.1uF	10%	35V
C255	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C256	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C257	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C258	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C259	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C260	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C261	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C262	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C263	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C264	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C265	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C275	1-162-907-11	CERAMIC CHIP	2PF	0.25PF	50V
C276	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C277	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C281	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C282	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C283	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C284	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C285	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C302	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C304	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C307	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C308	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C311	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C312	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C313	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C314	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C315	1-126-246-11	ELECT CHIP	220uF	20%	4V
C316	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C317	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C318	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C320	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C322	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C323	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C327	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C328	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C329	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C330	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C337	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C338	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C339	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C340	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C345	1-164-346-11	CERAMIC CHIP	1uF		16V
C346	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C361	1-164-315-11	CERAMIC CHIP	470PF	5%	50V
C362	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C363	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C364	1-165-319-11	CERAMIC CHIP	0.1uF		50V
C365	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C366	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C368	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C369	1-164-346-11	CERAMIC CHIP	1uF		16V
C370	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C371	1-162-926-11	CERAMIC CHIP	82PF	5%	50V
C372	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C373	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C375	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C376	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C377	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C378	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C379	1-162-918-11	CERAMIC CHIP	18PF	5%	50V
C380	1-162-918-11	CERAMIC CHIP	18PF	5%	50V
C381	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C401	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C402	1-162-941-11	CERAMIC CHIP	10PF	0.5PF	50V
C403	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C405	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C406	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C408	1-164-471-11	CERAMIC CHIP	680PF	5%	50V
C410	1-135-202-21	TANTAL. CHIP	22uF	20%	4V
C411	1-135-208-11	TANTAL. CHIP	1uF	20%	10V
C412	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C413	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C414	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C415	1-135-338-11	TANTAL. CHIP	220uF	20%	4V
C416	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C418	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C420	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C422	1-162-956-11	CERAMIC CHIP	180PF	5%	50V
C424	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C425	1-162-947-11	CERAMIC CHIP	33PF	5%	50V
C427	1-162-957-11	CERAMIC CHIP	220PF	5%	50V

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Ref. No.	Part No.	Description			Remarks
C428	1-162-959-11	CERAMIC CHIP	330PF	5%	50V
C429	1-162-958-11	CERAMIC CHIP	270PF	5%	50V
C431	1-135-202-21	TANTAL. CHIP	22uF	20%	4V
C432	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C433	1-162-948-11	CERAMIC CHIP	39PF	5%	50V
C435	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C436	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C437	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C438	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C439	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C440	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C441	1-164-217-11	CERAMIC CHIP	150PF	5%	50V
C442	1-162-949-11	CERAMIC CHIP	47PF	5%	50V
C443	1-164-217-11	CERAMIC CHIP	150PF	5%	50V
C444	1-162-952-11	CERAMIC CHIP	82PF	5%	50V
C445	1-162-959-11	CERAMIC CHIP	330PF	5%	50V
C447	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C448	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V
C449	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C451	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C452	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C453	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V
C454	1-164-392-11	CERAMIC CHIP	390PF	5%	50V
C455	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C456	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C457	1-162-943-11	CERAMIC CHIP	15PF	5%	50V
C459	1-162-946-11	CERAMIC CHIP	27PF	5%	50V
C460	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C462	1-162-956-11	CERAMIC CHIP	180PF	5%	50V
C463	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C464	1-162-948-11	CERAMIC CHIP	39PF	5%	50V
C466	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C467	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C469	1-135-202-21	TANTAL. CHIP	22uF	20%	4V
C472	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C473	1-162-958-11	CERAMIC CHIP	270PF	5%	50V
C474	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C475	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C476	1-162-954-11	CERAMIC CHIP	120PF	5%	50V
C477	1-164-217-11	CERAMIC CHIP	150PF	5%	50V
C479	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C480	1-162-951-11	CERAMIC CHIP	68PF	5%	50V
C481	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C482	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C483	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C484	1-162-952-11	CERAMIC CHIP	82PF	5%	50V
C486	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C487	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C488	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C489	1-164-156-11	CERAMIC CHIP	0.1uF		25V

Ref. No.	Part No.	Description			Remarks
C490	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C491	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C494	1-162-907-11	CERAMIC CHIP	2PF	0.25PF	50V
C495	1-162-912-11	CERAMIC CHIP	7PF	0.5PF	50V
C496	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C497	1-135-208-11	TANTAL. CHIP	1uF	20%	10V
C498	1-162-943-11	CERAMIC CHIP	15PF	5%	50V
C499	1-162-946-11	CERAMIC CHIP	27PF	5%	50V
C501	1-162-995-11	CERAMIC CHIP	0.022uF		50V
C502	1-162-969-11	CERAMIC CHIP	0.0068uF	10%	25V
C503	1-135-226-21	TANTAL. CHIP	0.68uF	20%	16V
C504	1-135-208-11	TANTAL. CHIP	1uF	20%	10V
C505	1-162-951-11	CERAMIC CHIP	68PF	5%	50V
C506	1-162-945-11	CERAMIC CHIP	22PF	5%	50V
C507	1-162-944-11	CERAMIC CHIP	18PF	5%	50V
C508	1-162-948-11	CERAMIC CHIP	39PF	5%	50V
C551	1-164-346-11	CERAMIC CHIP	1uF		16V
C553	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V
C554	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C555	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C556	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V
C557	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C558	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C559	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V
C561	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C562	1-162-949-11	CERAMIC CHIP	47PF	5%	50V
C563	1-162-949-11	CERAMIC CHIP	47PF	5%	50V
C564	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C565	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C567	1-164-346-11	CERAMIC CHIP	1uF		16V
C568	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V
C569	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C570	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C571	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V
C572	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C573	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C574	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V
C576	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C577	1-162-947-11	CERAMIC CHIP	33PF	5%	50V
C578	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C579	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C580	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C581	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C582	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C583	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C584	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C586	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C590	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C601	1-135-145-11	TANTALUM CHIP	0.47uF	10%	35V
C602	1-164-360-11	CERAMIC CHIP	0.1uF		16V

Ref. No.	Part No.	Description			Remarks
C603	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C604	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C605	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C607	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C608	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C609	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C610	1-162-947-11	CERAMIC CHIP	33PF	5%	50V
C613	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C614	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C615	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C617	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C618	1-107-685-11	TANTAL. CHIP	15uF	20%	6.3V
C619	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C620	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C621	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C622	1-135-091-91	TANTAL. CHIP	1uF	20%	16V
C623	1-135-091-91	TANTAL. CHIP	1uF	20%	16V
C624	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C625	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C626	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C627	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C628	1-135-210-11	TANTALUM CHIP	4.7uF	20%	10V
C629	1-162-963-11	CERAMIC CHIP	680PF	10%	50V
C630	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C631	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C632	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C633	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C635	1-135-145-11	TANTALUM CHIP	0.47uF	10%	35V
C636	1-164-634-11	CERAMIC CHIP	1uF		16V
C651	1-162-922-11	CERAMIC CHIP	39PF	5%	50V
C652	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C654	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C655	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C656	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C657	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C658	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C659	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C660	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C661	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C662	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C663	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C664	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C665	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C666	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C667	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C668	1-135-217-21	TANTALUM CHIP	15uF	20%	6.3V
C669	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C670	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C671	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C672	1-164-357-11	CERAMIC CHIP	1000PF	5%	50V
C673	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C674	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C675	1-164-357-11	CERAMIC CHIP	1000PF	5%	50V
C680	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C682	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C683	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C685	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C686	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C689	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C690	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C691	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C693	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C694	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C695	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C696	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C697	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C699	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C701	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C702	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C703	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C705	1-162-925-11	CERAMIC CHIP	68PF	5%	50V
C706	1-162-974-11	CERAMIC CHIP	0.01uF		50V

< CONNECTOR >

Ref. No.	Part No.	Description
CN001	1-573-355-11	CONNECTOR, FFC/FPC 15P
CN002	1-573-371-21	CONNECTOR, BOARD TO BOARD 14P
CN201	1-573-924-11	CONNECTOR, FFC/FPC (ZIF) 15P
CN202	1-573-346-21	CONNECTOR, FFC/FPC 6P
CN203	1-573-293-21	PIN, CONNECTOR (1.5MM)(SMD) 2P
CN205	1-573-364-11	CONNECTOR, FFC/FPC 24P
CN206	1-750-351-11	CONNECTOR, FFC/FPC (ZIF) 12P
CN207	1-573-358-11	CONNECTOR, FFC/FPC 18P
CN303	1-691-486-11	CONNECTOR, FFC/FPC 7P
* CN304	1-691-934-11	CONNECTOR, BOARD TO BOARD 36P
CN305	1-691-518-11	CONNECTOR, BOARD TO BOARD 28P
* CN306	1-691-522-11	CONNECTOR, BOARD TO BOARD 46P
CN601	1-750-630-11	CONNECTOR, FFC/FPC (ZIF) 16P
CN651	1-691-487-21	CONNECTOR, FFC/FPC 8P
CN652	1-691-519-11	CONNECTOR, BOARD TO BOARD 30P
CN653	1-573-355-11	CONNECTOR, FFC/FPC 15P
CN654	1-691-486-11	CONNECTOR, FFC/FPC 7P

< TRIMMER >

Ref. No.	Part No.	Description
CT601	1-141-430-51	CAP, CHIP TRIMMER

< DIODE >

Ref. No.	Part No.	Description	
D071	8-719-404-46	DIODE	MA110
D101	8-719-820-41	DIODE	1SS302
D102	8-719-404-46	DIODE	MA110
D301	8-719-421-67	DIODE	MA132WK
D308	8-719-404-46	DIODE	MA110

VC-137P

Ref. No.	Part No.	Description	Remarks
D309	8-719-040-57	DIODE RD8.2UM-T1B2B3	
D310	8-719-040-57	DIODE RD8.2UM-T1B2B3	
D311	8-719-404-46	DIODE MA110	
D312	8-719-404-46	DIODE MA110	
D401	8-719-404-46	DIODE MA110	
D402	8-719-043-70	DIODE MA6S121-(TX)	
D403	8-719-421-71	DIODE MA132WA	
D404	8-719-421-71	DIODE MA132WA	
D405	8-719-404-46	DIODE MA110	
D410	8-719-404-46	DIODE MA110	
D411	8-719-404-46	DIODE MA110	
D412	8-719-404-46	DIODE MA110	
D551	8-719-421-67	DIODE MA132WK	
D554	8-719-421-67	DIODE MA132WK	
D601	8-719-404-46	DIODE MA110	
D602	8-719-421-67	DIODE MA132WK	
D651	8-713-300-88	DIODE 1T33C-01	
D652	8-719-404-46	DIODE MA110	
D653	8-719-404-46	DIODE MA110	

< FILTER >

Ref. No.	Part No.	Description	Remarks
FL071	1-239-386-21	FILTER, BAND PASS (PAL.JOG)	
FL345	1-406-452-11	COIL, OSC	
FL401	1-236-775-11	FILTER, LOW PASS (DEM)	
FL402	1-239-112-21	FILTER, LOW PASS (Y)	
FL403	1-239-110-11	FILTER, BAND PASS	
FL404	1-579-668-11	FILTER, CERAMIC	
FL405	1-239-349-21	FILTER, BAND PASS (CE.PAL)	
FL551	1-236-848-21	FILTER, LOW PASS	
FL552	1-239-010-11	FILTER, LOW PASS (CCD.PAL.Y)	
FL651	1-239-744-11	FILTER, LOW PASS (YH)	

< IC >

Ref. No.	Part No.	Description	Remarks
IC001	8-759-173-71	IC CXA1555CR-E2	
IC071	8-759-605-61	IC CXA1203N	
IC101	8-752-058-02	IC CXA1509AR	
IC201	8-752-841-92	IC CXP80620A-015R	
IC202	8-759-059-42	IC CXA1481AR	
IC203	8-759-823-90	IC LB8110M	
IC204	8-759-164-59	IC MCD002BR-TE-B	
IC205	8-759-169-10	IC CXA1575N	
IC206	8-759-166-93	IC LB1843V-TLM	
IC302	8-759-170-69	IC MC13400VMER	
IC303	8-759-069-23	IC MB88344PFV	
IC306	8-759-061-70	IC MB86168PFV	
IC340	8-759-710-29	IC NJM2235M	
IC345	8-759-168-42	IC uPD6461GS-606-GLG-E2	
IC346	8-759-044-78	IC AK6420F	
IC361	8-752-010-20	IC CX20102	
IC362	8-759-061-72	IC CXD2120R	
IC401	8-752-065-54	IC CXA1207AR	
IC402	8-752-053-21	IC CXA1211M	
IC403	8-759-636-33	IC CXA1452N	
IC404	8-752-051-40	IC CXA1208R	
IC405	8-752-053-21	IC CXA1211M	
IC406	8-759-070-51	IC SN74HCU04ADB	
IC551	8-752-351-95	IC CXL1506N	
IC552	8-752-351-95	IC CXL1506N	
IC601	8-752-355-07	IC CXD1267N-T4	
IC602	8-752-353-25	IC CXD1265R	
IC603	8-752-053-26	IC CXA1399Q	
IC604	8-752-060-50	IC CXA1577R	
IC605	8-752-368-43	IC CXD2115AQ-T4	
IC651	8-759-044-78	IC AK6420F	
IC652	8-752-851-99	IC CXP80620A-035R	
IC653	8-759-257-72	IC SC406816FUMC68HC11M2	
IC654	8-759-064-36	IC MB88346BPFV	
IC655	8-759-094-05	IC LC78866V-TLM	
IC656	8-759-262-36	IC CXD2133BR-T6	
IC659	8-752-350-13	IC CXD2130R	
IC660	8-752-358-10	IC CXD2101BR	
IC661	8-759-031-58	IC SC7SU04F	
IC662	8-752-363-56	IC CXD2116R-T6	
IC663	8-759-198-34	IC TA75S558F	

< COIL >

Ref. No.	Part No.	Description	Remarks
L001	1-412-033-11	INDUCTOR CHIP 220uH	
L002	1-412-951-11	INDUCTOR 10uH	
L004	1-414-119-11	INDUCTOR 22uH	
L005	1-412-032-11	INDUCTOR CHIP 100uH	
L007	1-412-032-11	INDUCTOR CHIP 100uH	
L008	1-414-119-11	INDUCTOR 22uH	
L071	1-412-951-11	INDUCTOR 10uH	
L103	1-412-961-11	INDUCTOR 68uH	
L104	1-412-947-11	INDUCTOR 4.7uH	
L105	1-412-954-11	INDUCTOR 18uH	
L106	1-412-945-11	INDUCTOR 3.3uH	
L109	1-410-657-21	INDUCTOR CHIP 180uH	
L110	1-412-954-11	INDUCTOR 18uH	
L111	1-412-029-11	INDUCTOR CHIP 10uH	
L112	1-412-954-11	INDUCTOR 18uH	
L113	1-412-957-11	INDUCTOR 33uH	
L114	1-412-951-11	INDUCTOR 10uH	
L120	1-412-957-11	INDUCTOR 33uH	
L121	1-412-279-31	INDUCTOR 270uH	
L122	1-412-282-41	INDUCTOR 470uH	
L123	1-410-657-21	INDUCTOR CHIP 180uH	
L124	1-412-958-21	INDUCTOR 39uH	
L125	1-412-949-21	INDUCTOR 6.8uH	
L126	1-410-655-31	INDUCTOR CHIP 120uH	
L172	1-412-952-11	INDUCTOR 12uH	

Ref. No.	Part No.	Description	Remarks
L173	1-412-029-11	INDUCTOR CHIP 10uH	
L175	1-412-947-11	INDUCTOR 4.7uH	
L201	1-412-062-11	INDUCTOR CHIP 47uH	
L203	1-412-064-11	INDUCTOR CHIP 100uH	
L303	1-412-959-11	INDUCTOR 47uH	
L305	1-414-117-11	INDUCTOR 1uH	
L306	1-414-117-11	INDUCTOR 1uH	
L361	1-410-658-31	INDUCTOR CHIP 220uH	
L363	1-414-078-11	INDUCTOR 10uH	
L364	1-414-078-11	INDUCTOR 10uH	
L401	1-412-963-11	INDUCTOR 100uH	
L402	1-412-951-11	INDUCTOR 10uH	
L404	1-412-951-11	INDUCTOR 10uH	
L405	1-412-956-21	INDUCTOR 27uH	
L406	1-412-946-11	INDUCTOR 3.9uH	
L407	1-412-956-21	INDUCTOR 27uH	
L408	1-412-950-11	INDUCTOR 8.2uH	
L411	1-412-947-11	INDUCTOR 4.7uH	
L413	1-410-656-11	INDUCTOR CHIP 150uH	
L414	1-412-960-21	INDUCTOR 56uH	
L415	1-410-391-11	INDUCTOR CHIP 68uH	
L416	1-412-963-11	INDUCTOR 100uH	
L417	1-410-656-11	INDUCTOR CHIP 150uH	
L418	1-412-963-11	INDUCTOR 100uH	
L420	1-412-956-21	INDUCTOR 27uH	
L421	1-412-952-11	INDUCTOR 12uH	
L422	1-412-960-21	INDUCTOR 56uH	
L601	1-412-991-11	INDUCTOR 10uH	
L602	1-412-029-11	INDUCTOR CHIP 10uH	
L603	1-412-029-11	INDUCTOR CHIP 10uH	
L604	1-412-029-11	INDUCTOR CHIP 10uH	
L606	1-412-390-21	INDUCTOR CHIP 0uH	
L651	1-412-006-31	INDUCTOR CHIP 10uH	
L653	1-414-078-11	INDUCTOR 10uH	
L654	1-414-078-11	INDUCTOR 10uH	
L655	1-414-078-11	INDUCTOR 10uH	
L656	1-414-078-11	INDUCTOR 10uH	
L657	1-414-078-11	INDUCTOR 10uH	
L659	1-414-078-11	INDUCTOR 10uH	
L660	1-412-991-11	INDUCTOR 10uH	
L661	1-412-963-11	INDUCTOR 100uH	
L662	1-412-006-31	INDUCTOR CHIP 10uH	
L663	1-414-117-11	INDUCTOR 1uH	
L664	1-412-979-21	INDUCTOR 1uH	
L665	1-412-979-21	INDUCTOR 1uH	
L666	1-414-117-11	INDUCTOR 1uH	
L667	1-414-117-11	INDUCTOR 1uH	
L668	1-414-117-11	INDUCTOR 1uH	

< TRANSISTOR >

Ref. No.	Part No.	Description		Remarks
Q001	8-729-425-50	TRANSISTOR	2SB1462Q	
Q002	8-729-425-50	TRANSISTOR	2SB1462Q	
Q003	8-729-425-50	TRANSISTOR	2SB1462Q	
Q005	8-729-015-66	TRANSISTOR	2SC4919	
Q006	8-729-015-66	TRANSISTOR	2SC4919	
Q007	8-729-015-66	TRANSISTOR	2SC4919	
Q008	8-729-015-66	TRANSISTOR	2SC4919	
Q010	8-729-428-88	TRANSISTOR	UN9113	
Q011	8-729-428-88	TRANSISTOR	UN9113	
Q012	8-729-428-88	TRANSISTOR	UN9113	
Q013	8-729-428-88	TRANSISTOR	UN9113	
Q060	8-729-425-50	TRANSISTOR	2SB1462Q	
Q071	8-729-428-88	TRANSISTOR	UN9113	
Q072	8-729-429-18	TRANSISTOR	UN9213	
Q073	8-729-425-64	TRANSISTOR	2SD2216Q	
Q074	8-729-425-64	TRANSISTOR	2SD2216Q	
Q075	8-729-425-64	TRANSISTOR	2SD2216Q	
Q076	8-729-429-18	TRANSISTOR	UN9213	
Q101	8-729-425-64	TRANSISTOR	2SD2216Q	
Q102	8-729-429-18	TRANSISTOR	UN9213	
Q104	8-729-429-18	TRANSISTOR	UN9213	
Q105	8-729-425-73	TRANSISTOR	2SC4627-C	
Q106	8-729-428-88	TRANSISTOR	UN9113	
Q107	8-729-425-64	TRANSISTOR	2SD2216Q	
Q108	8-729-427-46	TRANSISTOR	XP4213	
Q109	8-729-425-64	TRANSISTOR	2SD2216Q	
Q110	8-729-429-18	TRANSISTOR	UN9213	
Q111	8-729-429-18	TRANSISTOR	UN9213	
Q115	8-729-425-64	TRANSISTOR	2SD2216Q	
Q116	8-729-425-64	TRANSISTOR	2SD2216Q	
Q117	8-729-425-73	TRANSISTOR	2SC4627-C	
Q118	8-729-425-50	TRANSISTOR	2SB1462Q	
Q119	8-729-425-73	TRANSISTOR	2SC4627-C	
Q120	8-729-429-18	TRANSISTOR	UN9213	
Q121	8-729-429-18	TRANSISTOR	UN9213	
Q122	8-729-425-64	TRANSISTOR	2SD2216Q	
Q123	8-729-425-64	TRANSISTOR	2SD2216Q	
Q124	8-729-429-18	TRANSISTOR	UN9213	
Q125	8-729-140-63	TRANSISTOR	2SA1611-M5M6	
Q201	8-729-429-14	TRANSISTOR	UN9211	
Q203	8-729-427-16	TRANSISTOR	XP4113	
Q204	8-729-427-46	TRANSISTOR	XP4213	
Q205	8-729-429-32	TRANSISTOR	UN9210-QRS	
Q303	8-729-429-18	TRANSISTOR	UN9213	
Q304	8-729-425-73	TRANSISTOR	2SC4627-C	
Q305	8-729-425-64	TRANSISTOR	2SD2216Q	
Q306	8-729-425-50	TRANSISTOR	2SB1462Q	
Q307	8-729-429-18	TRANSISTOR	UN9213	
Q308	8-729-425-50	TRANSISTOR	2SB1462Q	
Q309	8-729-425-50	TRANSISTOR	2SB1462Q	

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Ref. No.	Part No.	Description	Remarks
Q310	8-729-429-18	TRANSISTOR UN9213	
Q361	8-729-425-64	TRANSISTOR 2SD2216Q	
Q362	8-729-425-64	TRANSISTOR 2SD2216Q	
Q363	8-729-425-64	TRANSISTOR 2SD2216Q	
Q364	8-729-425-50	TRANSISTOR 2SB1462Q	
Q365	8-729-425-64	TRANSISTOR 2SD2216Q	
Q401	8-729-429-18	TRANSISTOR UN9213	
Q402	8-729-425-50	TRANSISTOR 2SB1462Q	
Q403	8-729-824-05	TRANSISTOR 3SK248	
Q404	8-729-429-18	TRANSISTOR UN9213	
Q405	8-729-425-73	TRANSISTOR 2SC4627-C	
Q406	8-729-429-18	TRANSISTOR UN9213	
Q408	8-729-427-46	TRANSISTOR XP4213	
Q409	8-729-425-73	TRANSISTOR 2SC4627-C	
Q410	8-729-429-50	TRANSISTOR XP4312	
Q411	8-729-427-72	TRANSISTOR XP4501	
Q412	8-729-428-88	TRANSISTOR UN9113	
Q413	8-729-428-88	TRANSISTOR UN9113	
Q414	8-729-425-64	TRANSISTOR 2SD2216Q	
Q415	8-729-428-88	TRANSISTOR UN9113	
Q417	8-729-425-73	TRANSISTOR 2SC4627-C	
Q418	8-729-428-84	TRANSISTOR UN9111	
Q419	8-729-425-50	TRANSISTOR 2SB1462Q	
Q420	8-729-429-18	TRANSISTOR UN9213	
Q421	8-729-425-83	TRANSISTOR XP1113	
Q425	8-729-428-88	TRANSISTOR UN9113	
Q426	8-729-429-05	TRANSISTOR UN911D-(TXE)	
Q427	8-729-425-73	TRANSISTOR 2SC4627-C	
Q428	8-729-015-70	TRANSISTOR 2SA1865	
Q429	8-729-429-18	TRANSISTOR UN9213	
Q431	8-729-425-64	TRANSISTOR 2SD2216Q	
Q435	8-729-425-64	TRANSISTOR 2SD2216Q	
Q437	8-729-429-14	TRANSISTOR UN9211	
Q438	8-729-425-64	TRANSISTOR 2SD2216Q	
Q439	8-729-425-50	TRANSISTOR 2SB1462Q	
Q440	8-729-429-18	TRANSISTOR UN9213	
Q441	8-729-425-64	TRANSISTOR 2SD2216Q	
Q442	8-729-425-64	TRANSISTOR 2SD2216Q	
Q443	8-729-425-64	TRANSISTOR 2SD2216Q	
Q444	8-729-015-68	TRANSISTOR 2SC4922	
Q445	8-729-425-64	TRANSISTOR 2SD2216Q	
Q446	8-729-425-73	TRANSISTOR 2SC4627-C	
Q447	8-729-428-88	TRANSISTOR UN9113	
Q448	8-729-429-18	TRANSISTOR UN9213	
Q449	8-729-429-18	TRANSISTOR UN9213	
Q450	8-729-429-18	TRANSISTOR UN9213	
Q451	8-729-429-18	TRANSISTOR UN9213	
Q452	8-729-425-50	TRANSISTOR 2SB1462Q	
Q453	8-729-425-50	TRANSISTOR 2SB1462Q	
Q551	8-729-807-87	TRANSISTOR 2SB1295-UL6	
Q552	8-729-807-87	TRANSISTOR 2SB1295-UL6	
Q553	8-729-429-18	TRANSISTOR UN9213	
Q554	8-729-807-87	TRANSISTOR 2SB1295-UL6	
Q555	8-729-425-50	TRANSISTOR 2SB1462Q	
Q556	8-729-425-64	TRANSISTOR 2SD2216Q	
Q557	8-729-425-64	TRANSISTOR 2SD2216Q	
Q558	8-729-429-18	TRANSISTOR UN9213	
Q559	8-729-425-50	TRANSISTOR 2SB1462Q	
Q560	8-729-425-64	TRANSISTOR 2SD2216Q	
Q561	8-729-425-73	TRANSISTOR 2SC4627-C	
Q562	8-729-015-68	TRANSISTOR 2SC4922	
Q563	8-729-015-68	TRANSISTOR 2SC4922	
Q566	8-729-429-18	TRANSISTOR UN9213	
Q601	8-729-427-70	TRANSISTOR XP4401	
Q603	8-729-427-74	TRANSISTOR XP4601	
Q651	8-729-428-84	TRANSISTOR UN9111	
Q653	8-729-429-32	TRANSISTOR UN9210-QRS	
Q654	8-729-429-32	TRANSISTOR UN9210-QRS	
Q658	8-729-425-50	TRANSISTOR 2SB1462Q	
Q659	8-729-425-64	TRANSISTOR 2SD2216Q	
Q660	8-729-425-50	TRANSISTOR 2SB1462Q	
Q661	8-729-425-50	TRANSISTOR 2SB1462Q	

< RESISTOR >

Ref. No.	Part No.	Description	Remarks
R001	1-218-969-11	METAL GLAZE 22K 5% 1/16W	
R002	1-218-971-11	METAL GLAZE 33K 5% 1/16W	
R003	1-218-946-11	METAL GLAZE 270 5% 1/16W	
R004	1-218-945-11	METAL GLAZE 220 5% 1/16W	
R005	1-218-957-11	METAL GLAZE 2.2K 5% 1/16W	
R006	1-218-961-11	METAL GLAZE 4.7K 5% 1/16W	
R007	1-218-937-11	METAL GLAZE 47 5% 1/16W	
R008	1-218-937-11	METAL GLAZE 47 5% 1/16W	
R009	1-218-950-11	METAL GLAZE 560 5% 1/16W	
R011	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R012	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R013	1-218-939-11	METAL GLAZE 68 5% 1/16W	
R015	1-218-961-11	METAL GLAZE 4.7K 5% 1/16W	
R018	1-218-961-11	METAL GLAZE 4.7K 5% 1/16W	
R019	1-218-939-11	METAL GLAZE 68 5% 1/16W	
R020	1-218-939-11	METAL GLAZE 68 5% 1/16W	
R021	1-218-961-11	METAL GLAZE 4.7K 5% 1/16W	
R024	1-218-961-11	METAL GLAZE 4.7K 5% 1/16W	
R025	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R026	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R027	1-218-939-11	METAL GLAZE 68 5% 1/16W	
R028	1-218-969-11	METAL GLAZE 22K 5% 1/16W	
R029	1-218-969-11	METAL GLAZE 22K 5% 1/16W	
R030	1-218-969-11	METAL GLAZE 22K 5% 1/16W	
R033	1-218-949-11	METAL GLAZE 470 5% 1/16W	

Ref. No.	Part No.	Description			Remarks
R034	1-218-949-11	METAL GLAZE	470	5%	1/16W
R035	1-218-949-11	METAL GLAZE	470	5%	1/16W
R036	1-218-949-11	METAL GLAZE	470	5%	1/16W
R037	1-218-990-11	METAL GLAZE	0	5%	1/16W
R039	1-218-968-11	METAL GLAZE	18K	5%	1/16W
R040	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R042	1-218-956-11	METAL GLAZE	1.8K	5%	1/16W
R043	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R044	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R045	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R046	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R047	1-218-956-11	METAL GLAZE	1.8K	5%	1/16W
R060	1-218-959-11	METAL GLAZE	3.3K	5%	1/16W
R071	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R072	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R073	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R074	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R075	1-218-740-11	METAL CHIP	100K	0.50%	1/16W
R076	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R077	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R078	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R079	1-218-964-11	METAL GLAZE	8.2K	5%	1/16W
R080	1-218-966-11	METAL GLAZE	12K	5%	1/16W
R081	1-218-949-11	METAL GLAZE	470	5%	1/16W
R082	1-218-960-11	METAL GLAZE	3.9K	5%	1/16W
R083	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R084	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R085	1-218-966-11	METAL GLAZE	12K	5%	1/16W
R086	1-218-952-11	METAL GLAZE	820	5%	1/16W
R087	1-218-949-11	METAL GLAZE	470	5%	1/16W
R088	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R089	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R090	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R091	1-218-990-11	METAL GLAZE	0	5%	1/16W
R101	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R102	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R103	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R104	1-218-949-11	METAL GLAZE	470	5%	1/16W
R105	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R106	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R108	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R109	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R110	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R111	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R112	1-218-958-11	METAL GLAZE	2.7K	5%	1/16W
R113	1-218-952-11	METAL GLAZE	820	5%	1/16W
R114	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W
R115	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R116	1-218-950-11	METAL GLAZE	560	5%	1/16W

Ref. No.	Part No.	Description			Remarks
R117	1-218-946-11	METAL GLAZE	270	5%	1/16W
R118	1-218-949-11	METAL GLAZE	470	5%	1/16W
R120	1-218-990-11	METAL GLAZE	0	5%	1/16W
R121	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R122	1-218-952-11	METAL GLAZE	820	5%	1/16W
R123	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R124	1-218-946-11	METAL GLAZE	270	5%	1/16W
R126	1-218-945-11	METAL GLAZE	220	5%	1/16W
R128	1-218-947-11	METAL GLAZE	330	5%	1/16W
R129	1-218-963-11	METAL GLAZE	6.8K	5%	1/16W
R130	1-218-963-11	METAL GLAZE	6.8K	5%	1/16W
R131	1-218-949-11	METAL GLAZE	470	5%	1/16W
R132	1-218-940-11	METAL GLAZE	82	5%	1/16W
R133	1-218-955-11	METAL GLAZE	1.5K	5%	1/16W
R134	1-218-956-11	METAL GLAZE	1.8K	5%	1/16W
R135	1-218-962-11	METAL GLAZE	5.6K	5%	1/16W
R136	1-218-954-11	METAL GLAZE	1.2K	5%	1/16W
R137	1-218-956-11	METAL GLAZE	1.8K	5%	1/16W
R138	1-218-956-11	METAL GLAZE	1.8K	5%	1/16W
R139	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R140	1-218-954-11	METAL GLAZE	1.2K	5%	1/16W
R141	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R143	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R144	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R145	1-218-971-11	METAL GLAZE	33K	5%	1/16W
R155	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R156	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R157	1-218-955-11	METAL GLAZE	1.5K	5%	1/16W
R158	1-218-947-11	METAL GLAZE	330	5%	1/16W
R159	1-218-950-11	METAL GLAZE	560	5%	1/16W
R160	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R161	1-218-952-11	METAL GLAZE	820	5%	1/16W
R162	1-218-949-11	METAL GLAZE	470	5%	1/16W
R163	1-218-949-11	METAL GLAZE	470	5%	1/16W
R164	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R165	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R166	1-218-947-11	METAL GLAZE	330	5%	1/16W
R167	1-218-949-11	METAL GLAZE	470	5%	1/16W
R168	1-218-948-11	METAL GLAZE	390	5%	1/16W
R169	1-218-949-11	METAL GLAZE	470	5%	1/16W
R170	1-218-951-11	METAL GLAZE	680	5%	1/16W
R171	1-218-960-11	METAL GLAZE	3.9K	5%	1/16W
R172	1-218-949-11	METAL GLAZE	470	5%	1/16W
R173	1-218-942-11	METAL GLAZE	120	5%	1/16W
R174	1-218-952-11	METAL GLAZE	820	5%	1/16W
R175	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R191	1-218-990-11	METAL GLAZE	0	5%	1/16W
R201	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R202	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R203	1-218-973-11	METAL GLAZE	47K	5%	1/16W

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Ref. No.	Part No.	Description			Remarks
R204	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R205	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R206	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R207	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R208	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R209	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R210	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R211	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R213	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R214	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R215	1-218-959-11	METAL GLAZE	3.3K	5%	1/16W
R216	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R217	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R218	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R219	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R220	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R221	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R222	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R226	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R227	1-218-956-11	METAL GLAZE	1.8K	5%	1/16W
R228	1-218-981-11	METAL GLAZE	220K	5%	1/16W
R229	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R230	1-218-989-11	METAL GLAZE	1M	5%	1/16W
R231	1-218-989-11	METAL GLAZE	1M	5%	1/16W
R232	1-218-949-11	METAL GLAZE	470	5%	1/16W
R233	1-218-949-11	METAL GLAZE	470	5%	1/16W
R234	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R235	1-218-959-11	METAL GLAZE	3.3K	5%	1/16W
R236	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R237	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R238	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R239	1-216-019-00	METAL CHIP	56	5%	1/10W
R241	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R242	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R243	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R244	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R245	1-218-989-11	METAL GLAZE	1M	5%	1/16W
R246	1-218-971-11	METAL GLAZE	33K	5%	1/16W
R247	1-218-984-11	METAL GLAZE	390K	5%	1/16W
R248	1-218-970-11	METAL GLAZE	27K	5%	1/16W
R249	1-218-971-11	METAL GLAZE	33K	5%	1/16W
R250	1-218-989-11	METAL GLAZE	1M	5%	1/16W
R251	1-218-989-11	METAL GLAZE	1M	5%	1/16W
R253	1-218-972-11	METAL GLAZE	39K	5%	1/16W
R254	1-218-985-11	METAL GLAZE	470K	5%	1/16W
R255	1-218-981-11	METAL GLAZE	220K	5%	1/16W
R256	1-218-985-11	METAL GLAZE	470K	5%	1/16W
R257	1-217-671-11	METAL CHIP	1	5%	1/10W
R258	1-217-671-11	METAL CHIP	1	5%	1/10W
R259	1-217-671-11	METAL CHIP	1	5%	1/10W

Ref. No.	Part No.	Description			Remarks
R261	1-218-698-11	METAL CHIP	1.8K	0.50%	1/16W
R262	1-218-940-11	METAL GLAZE	82	5%	1/16W
R263	1-218-730-11	METAL CHIP	39K	0.50%	1/16W
R265	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R266	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R267	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R270	1-218-959-11	METAL GLAZE	3.3K	5%	1/16W
R271	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R272	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R273	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R274	1-218-956-11	METAL GLAZE	1.8K	5%	1/16W
R283	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R284	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R286	1-218-985-11	METAL GLAZE	470K	5%	1/16W
R287	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R290	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R291	1-217-671-11	METAL CHIP	1	5%	1/10W
R292	1-218-966-11	METAL GLAZE	12K	5%	1/16W
R293	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R294	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R295	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W
R296	1-218-950-11	METAL GLAZE	560	5%	1/16W
R297	1-218-960-11	METAL GLAZE	3.9K	5%	1/16W
R298	1-217-671-11	METAL CHIP	1	5%	1/10W
R301	1-218-955-11	METAL GLAZE	1.5K	5%	1/16W
R302	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R305	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R306	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W
R307	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R308	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W
R310	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R312	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W
R314	1-216-296-91	METAL GLAZE	0	5%	1/8W
R315	1-216-296-91	METAL GLAZE	0	5%	1/8W
R318	1-218-952-11	METAL GLAZE	820	5%	1/16W
R319	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R323	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R324	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R325	1-218-935-11	METAL GLAZE	33	5%	1/16W
R326	1-218-936-11	METAL GLAZE	39	5%	1/16W
R327	1-218-935-11	METAL GLAZE	33	5%	1/16W
R328	1-218-936-11	METAL GLAZE	39	5%	1/16W
R329	1-218-981-11	METAL GLAZE	220K	5%	1/16W
R330	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R331	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R332	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R333	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R334	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W
R335	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R336	1-218-965-11	METAL GLAZE	10K	5%	1/16W

Ref. No.	Part No.	Description			Remarks
R337	1-218-972-11	METAL GLAZE	39K	5%	1/16W
R338	1-218-971-11	METAL GLAZE	33K	5%	1/16W
R339	1-218-972-11	METAL GLAZE	39K	5%	1/16W
R340	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R341	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R344	1-216-864-11	METAL CHIP	0	5%	1/16W
R345	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R351	1-218-941-11	METAL GLAZE	100	5%	1/16W
R352	1-218-941-11	METAL GLAZE	100	5%	1/16W
R353	1-218-941-11	METAL GLAZE	100	5%	1/16W
R354	1-218-941-11	METAL GLAZE	100	5%	1/16W
R355	1-218-941-11	METAL GLAZE	100	5%	1/16W
R356	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R361	1-218-951-11	METAL GLAZE	680	5%	1/16W
R362	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R363	1-218-951-11	METAL GLAZE	680	5%	1/16W
R364	1-218-944-11	METAL GLAZE	180	5%	1/16W
R365	1-218-971-11	METAL GLAZE	33K	5%	1/16W
R366	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R367	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R368	1-218-941-11	METAL GLAZE	100	5%	1/16W
R369	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R370	1-218-951-11	METAL GLAZE	680	5%	1/16W
R371	1-218-945-11	METAL GLAZE	220	5%	1/16W
R372	1-218-983-11	METAL GLAZE	330K	5%	1/16W
R373	1-218-983-11	METAL GLAZE	330K	5%	1/16W
R374	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R375	1-218-955-11	METAL GLAZE	1.5K	5%	1/16W
R376	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R377	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R378	1-218-686-11	METAL CHIP	560	0.50%	1/16W
R379	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R380	1-218-954-11	METAL GLAZE	1.2K	5%	1/16W
R381	1-218-951-11	METAL GLAZE	680	5%	1/16W
R382	1-218-943-11	METAL GLAZE	150	5%	1/16W
R383	1-218-952-11	METAL GLAZE	820	5%	1/16W
R384	1-218-955-11	METAL GLAZE	1.5K	5%	1/16W
R385	1-218-980-11	METAL GLAZE	180K	5%	1/16W
R386	1-218-951-11	METAL GLAZE	680	5%	1/16W
R387	1-218-984-11	METAL GLAZE	390K	5%	1/16W
R388	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R390	1-218-990-11	METAL GLAZE	0	5%	1/16W
R391	1-218-989-11	METAL GLAZE	1M	5%	1/16W
R392	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R394	1-218-990-11	METAL GLAZE	0	5%	1/16W
R401	1-218-949-11	METAL GLAZE	470	5%	1/16W
R402	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R403	1-218-990-11	METAL GLAZE	0	5%	1/16W
R404	1-218-977-11	METAL GLAZE	100K	5%	1/16W

Ref. No.	Part No.	Description			Remarks
R406	1-218-960-11	METAL GLAZE	3.9K	5%	1/16W
R408	1-216-864-11	METAL CHIP	0	5%	1/16W
R410	1-218-936-11	METAL GLAZE	39	5%	1/16W
R411	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R412	1-218-716-11	METAL CHIP	10K	0.50%	1/16W
R413	1-218-952-11	METAL GLAZE	820	5%	1/16W
R414	1-218-935-11	METAL GLAZE	33	5%	1/16W
R415	1-218-971-11	METAL GLAZE	33K	5%	1/16W
R416	1-218-968-11	METAL GLAZE	18K	5%	1/16W
R417	1-218-959-11	METAL GLAZE	3.3K	5%	1/16W
R418	1-218-958-11	METAL GLAZE	2.7K	5%	1/16W
R419	1-218-716-11	METAL CHIP	10K	0.50%	1/16W
R420	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R422	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R423	1-218-740-11	METAL CHIP	100K	0.50%	1/16W
R424	1-218-950-11	METAL GLAZE	560	5%	1/16W
R425	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R426	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R427	1-218-985-11	METAL GLAZE	470K	5%	1/16W
R428	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R429	1-218-959-11	METAL GLAZE	3.3K	5%	1/16W
R430	1-218-958-11	METAL GLAZE	2.7K	5%	1/16W
R431	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R432	1-218-952-11	METAL GLAZE	820	5%	1/16W
R433	1-218-951-11	METAL GLAZE	680	5%	1/16W
R434	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R435	1-218-950-11	METAL GLAZE	560	5%	1/16W
R436	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R437	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W
R438	1-218-732-11	METAL CHIP	47K	0.50%	1/16W
R439	1-218-963-11	METAL GLAZE	6.8K	5%	1/16W
R440	1-218-962-11	METAL GLAZE	5.6K	5%	1/16W
R441	1-218-716-11	METAL CHIP	10K	0.50%	1/16W
R443	1-218-945-11	METAL GLAZE	220	5%	1/16W
R444	1-218-945-11	METAL GLAZE	220	5%	1/16W
R445	1-218-946-11	METAL GLAZE	270	5%	1/16W
R446	1-218-955-11	METAL GLAZE	1.5K	5%	1/16W
R447	1-218-990-11	METAL GLAZE	0	5%	1/16W
R448	1-218-694-11	METAL CHIP	1.2K	0.50%	1/16W
R449	1-218-949-11	METAL GLAZE	470	5%	1/16W
R451	1-218-947-11	METAL GLAZE	330	5%	1/16W
R452	1-218-947-11	METAL GLAZE	330	5%	1/16W
R453	1-218-951-11	METAL GLAZE	680	5%	1/16W
R454	1-218-732-11	METAL CHIP	47K	0.50%	1/16W
R455	1-218-704-11	METAL CHIP	3.3K	0.50%	1/16W
R456	1-218-946-11	METAL GLAZE	270	5%	1/16W
R457	1-218-951-11	METAL GLAZE	680	5%	1/16W
R458	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R459	1-218-720-11	METAL CHIP	15K	0.50%	1/16W
R460	1-218-990-11	METAL GLAZE	0	5%	1/16W

Ref. No.	Part No.	Description				Remarks
R461	1-218-988-11	METAL GLAZE	820K	5%	1/16W	
R462	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R463	1-218-837-11	METAL GLAZE	390	0.50%	1/16W	
R464	1-218-965-11	METAL GLAZE	10K	5%	1/16W	
R465	1-218-960-11	METAL GLAZE	3.9K	5%	1/16W	
R466	1-218-960-11	METAL GLAZE	3.9K	5%	1/16W	
R467	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R468	1-218-945-11	METAL GLAZE	220	5%	1/16W	
R469	1-218-684-11	METAL CHIP	470	0.50%	1/16W	
R470	1-216-296-91	METAL GLAZE	0	5%	1/8W	
R471	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R472	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W	
R473	1-218-965-11	METAL GLAZE	10K	5%	1/16W	
R475	1-218-958-11	METAL GLAZE	2.7K	5%	1/16W	
R477	1-218-951-11	METAL GLAZE	680	5%	1/16W	
R478	1-218-965-11	METAL GLAZE	10K	5%	1/16W	
R479	1-218-946-11	METAL GLAZE	270	5%	1/16W	
R480	1-218-945-11	METAL GLAZE	220	5%	1/16W	
R482	1-218-945-11	METAL GLAZE	220	5%	1/16W	
R483	1-218-965-11	METAL GLAZE	10K	5%	1/16W	
R484	1-218-948-11	METAL GLAZE	390	5%	1/16W	
R485	1-218-969-11	METAL GLAZE	22K	5%	1/16W	
R486	1-218-958-11	METAL GLAZE	2.7K	5%	1/16W	
R487	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W	
R488	1-218-942-11	METAL GLAZE	120	5%	1/16W	
R489	1-218-949-11	METAL GLAZE	470	5%	1/16W	
R490	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R491	1-218-959-11	METAL GLAZE	3.3K	5%	1/16W	
R492	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R495	1-218-990-11	METAL GLAZE	0	5%	1/16W	
R499	1-218-973-11	METAL GLAZE	47K	5%	1/16W	
R501	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W	
R502	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W	
R503	1-218-948-11	METAL GLAZE	390	5%	1/16W	
R504	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R505	1-218-939-11	METAL GLAZE	68	5%	1/16W	
R507	1-218-951-11	METAL GLAZE	680	5%	1/16W	
R509	1-218-965-11	METAL GLAZE	10K	5%	1/16W	
R510	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W	
R513	1-218-950-11	METAL GLAZE	560	5%	1/16W	
R514	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R516	1-218-990-11	METAL GLAZE	0	5%	1/16W	
R517	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W	
R518	1-218-959-11	METAL GLAZE	3.3K	5%	1/16W	
R521	1-218-950-11	METAL GLAZE	560	5%	1/16W	
R522	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W	
R523	1-218-959-11	METAL GLAZE	3.3K	5%	1/16W	
R524	1-218-954-11	METAL GLAZE	1.2K	5%	1/16W	
R526	1-218-956-11	METAL GLAZE	1.8K	5%	1/16W	
R527	1-218-955-11	METAL GLAZE	1.5K	5%	1/16W	

Ref. No.	Part No.	Description				Remarks
R528	1-218-740-11	METAL CHIP	100K	0.50%	1/16W	
R529	1-218-969-11	METAL GLAZE	22K	5%	1/16W	
R530	1-218-965-11	METAL GLAZE	10K	5%	1/16W	
R531	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W	
R532	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W	
R533	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W	
R534	1-218-966-11	METAL GLAZE	12K	5%	1/16W	
R535	1-218-966-11	METAL GLAZE	12K	5%	1/16W	
R536	1-218-962-11	METAL GLAZE	5.6K	5%	1/16W	
R537	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W	
R538	1-218-949-11	METAL GLAZE	470	5%	1/16W	
R539	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W	
R540	1-218-962-11	METAL GLAZE	5.6K	5%	1/16W	
R541	1-218-962-11	METAL GLAZE	5.6K	5%	1/16W	
R542	1-218-960-11	METAL GLAZE	3.9K	5%	1/16W	
R543	1-218-958-11	METAL GLAZE	2.7K	5%	1/16W	
R545	1-218-990-11	METAL GLAZE	0	5%	1/16W	
R550	1-218-990-11	METAL GLAZE	0	5%	1/16W	
R552	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W	
R553	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W	
R554	1-218-959-11	METAL GLAZE	3.3K	5%	1/16W	
R555	1-218-989-11	METAL GLAZE	1M	5%	1/16W	
R556	1-218-990-11	METAL GLAZE	0	5%	1/16W	
R557	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R558	1-218-976-11	METAL GLAZE	82K	5%	1/16W	
R559	1-216-864-11	METAL CHIP	0	5%	1/16W	
R561	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R564	1-218-990-11	METAL GLAZE	0	5%	1/16W	
R565	1-218-971-11	METAL GLAZE	33K	5%	1/16W	
R566	1-218-974-11	METAL GLAZE	56K	5%	1/16W	
R567	1-218-949-11	METAL GLAZE	470	5%	1/16W	
R568	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R569	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R570	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W	
R571	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W	
R572	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R573	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R574	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W	
R575	1-218-985-11	METAL GLAZE	470K	5%	1/16W	
R576	1-218-989-11	METAL GLAZE	1M	5%	1/16W	
R577	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R578	1-218-976-11	METAL GLAZE	82K	5%	1/16W	
R579	1-218-990-11	METAL GLAZE	0	5%	1/16W	
R581	1-218-990-11	METAL GLAZE	0	5%	1/16W	
R582	1-218-971-11	METAL GLAZE	33K	5%	1/16W	
R583	1-218-974-11	METAL GLAZE	56K	5%	1/16W	
R584	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R585	1-218-949-11	METAL GLAZE	470	5%	1/16W	
R586	1-218-958-11	METAL GLAZE	2.7K	5%	1/16W	
R587	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W	

Ref. No.	Part No.	Description			Remarks
R588	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R589	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R590	1-218-955-11	METAL GLAZE	1.5K	5%	1/16W
R591	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R592	1-218-974-11	METAL GLAZE	56K	5%	1/16W
R593	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R594	1-218-968-11	METAL GLAZE	18K	5%	1/16W
R595	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W
R596	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R598	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R599	1-218-960-11	METAL GLAZE	3.9K	5%	1/16W
R601	1-218-990-11	METAL GLAZE	0	5%	1/16W
R603	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R604	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R607	1-218-990-11	METAL GLAZE	0	5%	1/16W
R608	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R609	1-218-876-11	METAL CHIP	16K	0.50%	1/16W
R610	1-218-847-11	METAL CHIP	1K	0.50%	1/16W
R611	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R612	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R613	1-218-933-11	METAL GLAZE	22	5%	1/16W
R614	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R616	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R617	1-218-937-11	METAL GLAZE	47	5%	1/16W
R618	1-218-964-11	METAL GLAZE	8.2K	5%	1/16W
R619	1-218-948-11	METAL GLAZE	390	5%	1/16W
R624	1-218-990-11	METAL GLAZE	0	5%	1/16W
R627	1-218-990-11	METAL GLAZE	0	5%	1/16W
R628	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R652	1-218-989-11	METAL GLAZE	1M	5%	1/16W
R653	1-218-990-11	METAL GLAZE	0	5%	1/16W
R654	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R655	1-218-990-11	METAL GLAZE	0	5%	1/16W
R656	1-218-941-11	METAL GLAZE	100	5%	1/16W
R657	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R659	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R660	1-218-966-11	METAL GLAZE	12K	5%	1/16W
R661	1-218-966-11	METAL GLAZE	12K	5%	1/16W
R662	1-218-948-11	METAL GLAZE	390	5%	1/16W
R663	1-218-837-11	METAL GLAZE	390	0.50%	1/16W
R664	1-218-941-11	METAL GLAZE	100	5%	1/16W
R665	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R666	1-202-974-11	METAL GLAZE	3.3M	5%	1/16W
R667	1-218-979-11	METAL GLAZE	150K	5%	1/16W
R669	1-218-990-11	METAL GLAZE	0	5%	1/16W
R670	1-218-990-11	METAL GLAZE	0	5%	1/16W
R671	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R672	1-218-962-11	METAL GLAZE	5.6K	5%	1/16W
R673	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R674	1-202-974-11	METAL GLAZE	3.3M	5%	1/16W

Ref. No.	Part No.	Description			Remarks
R675	1-218-989-11	METAL GLAZE	1M	5%	1/16W
R679	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R680	1-218-990-11	METAL GLAZE	0	5%	1/16W
R681	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R682	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R684	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R685	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R686	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R687	1-218-971-11	METAL GLAZE	33K	5%	1/16W
R689	1-218-947-11	METAL GLAZE	330	5%	1/16W
R690	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R692	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R695	1-218-959-11	METAL GLAZE	3.3K	5%	1/16W
R696	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R697	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R698	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R699	1-218-952-11	METAL GLAZE	820	5%	1/16W
R700	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R701	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R702	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R703	1-218-989-11	METAL GLAZE	1M	5%	1/16W
R704	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R706	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R707	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R708	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R709	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R710	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R711	1-218-989-11	METAL GLAZE	1M	5%	1/16W
R712	1-218-990-11	METAL GLAZE	0	5%	1/16W
R713	1-218-959-11	METAL GLAZE	3.3K	5%	1/16W
R714	1-218-990-11	METAL GLAZE	0	5%	1/16W
R716	1-218-990-11	METAL GLAZE	0	5%	1/16W
R717	1-218-968-11	METAL GLAZE	18K	5%	1/16W
R718	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R719	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R720	1-218-990-11	METAL GLAZE	0	5%	1/16W
R721	1-218-965-11	METAL GLAZE	10K	5%	1/16W

< VARIABLE RESISTOR >

RV551	1-241-475-11	RES, ADJ, CERMET 1K

< VIBRATOR >

X201	1-579-368-31	VIBRATOR, CRYSTAL 11.718MHz
X361	1-579-558-11	VIBRATOR, CRYSTAL 11.5MHz
X401	1-579-366-11	VIBRATOR, CRYSTAL 4.43MHz
X601	1-579-621-11	VIBRATOR, CRYSTAL 28.375MHz
X651	1-579-669-11	VIBRATOR, LITIUM NIOBATE 16MHz
X652	1-760-245-11	VIBRATOR, CRYSTAL 11.8MHz
X653	1-579-553-11	VIBRATOR

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VF-61P

Ref. No.	Part No.	Description			Remarks
	A-7071-972-A	VF-61P BOARD, COMPLETE			
		**********************			
					(Ref.No.7,000 Seriese)
		< CAPACITOR >			
C804	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C805	1-135-091-91	TANTAL. CHIP	1uF	20%	16V
C806	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C807	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C808	1-135-145-11	TANTALUM CHIP	0.47uF	10%	35V
C809	1-164-346-11	CERAMIC CHIP	1uF		16V
C810	1-164-346-11	CERAMIC CHIP	1uF		16V
C811	1-164-346-11	CERAMIC CHIP	1uF		16V
C812	1-135-179-21	TANTAL. CHIP	2.2uF	20%	16V
C813	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C814	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C815	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C816	1-164-699-11	CERAMIC CHIP	0.0033uF	5%	50V
C817	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C818	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C819	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C820	1-164-357-11	CERAMIC CHIP	1000PF	5%	50V
C821	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C822	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C823	1-164-346-11	CERAMIC CHIP	1uF		16V
C824	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C825	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C828	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C829	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C830	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C832	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C833	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C834	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C835	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C838	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C839	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C840	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C842	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C844	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C845	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C846	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C847	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C848	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C849	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C850	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C851	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C852	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C853	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C861	1-164-346-11	CERAMIC CHIP	1uF		16V
C862	1-162-974-11	CERAMIC CHIP	0.01uF		50V

Ref. No.	Part No.	Description			Remarks
C863	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C864	1-135-179-21	TANTAL. CHIP	2.2uF	20%	16V
C865	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C866	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C867	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C872	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C873	1-164-005-11	CERAMIC CHIP	0.47uF		25V
		< CONNECTOR >			
* CN801	1-573-984-11	CONNECTOR, BOARD TO BOARD 10P			
* CN802	1-573-925-11	CONNECTOR, FFC/FPC (ZIF) 16P			
* CN803	1-573-350-11	CONNECTOR, FFC/FPC 10P			
		< DIODE >			
D801	8-719-025-91	DIODE MA365(E)			
		< IC >			
IC801	8-752-058-96	IC CXA1585Q			
IC802	8-752-058-95	IC CXA1515Q			
IC803	8-752-362-78	IC CXD2403R-T4			
		< COIL >			
L801	1-414-078-11	INDUCTOR 10uH			
L803	1-414-078-11	INDUCTOR 10uH			
L805	1-412-960-21	INDUCTOR 56uH			
L806	1-412-960-21	INDUCTOR 56uH			
L807	1-412-960-21	INDUCTOR 56uH			
L808	1-412-950-11	INDUCTOR 8.2uH			
L809	1-412-960-21	INDUCTOR 56uH			
L810	1-410-192-51	INDUCTOR CHIP 1uH			
		< TRANSISTOR >			
Q801	8-729-427-74	TRANSISTOR XP4601			
Q802	8-729-425-64	TRANSISTOR 2SD2216Q			
		< RESISTOR >			
R801	1-218-958-11	METAL GLAZE	2.7K	5%	1/16W
R802	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R803	1-218-955-11	METAL GLAZE	1.5K	5%	1/16W
R805	1-216-864-11	METAL CHIP	0	5%	1/16W
R807	1-218-970-11	METAL GLAZE	27K	5%	1/16W
R808	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R809	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R810	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R811	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R812	1-218-966-11	METAL GLAZE	12K	5%	1/16W
R813	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R814	1-218-989-11	METAL GLAZE	1M	5%	1/16W
R815	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R816	1-218-971-11	METAL GLAZE	33K	5%	1/16W
R817	1-218-969-11	METAL GLAZE	22K	5%	1/16W

Ref. No.	Part No.	Description	Remarks
R818	1-218-969-11	METAL GLAZE 22K 5% 1/16W	
R819	1-218-980-11	METAL GLAZE 180K 5% 1/16W	
R820	1-218-970-11	METAL GLAZE 27K 5% 1/16W	
R821	1-218-969-11	METAL GLAZE 22K 5% 1/16W	
R822	1-218-969-11	METAL GLAZE 22K 5% 1/16W	
R823	1-218-971-11	METAL GLAZE 33K 5% 1/16W	
R824	1-218-990-11	METAL GLAZE 0 5% 1/16W	
R825	1-218-989-11	METAL GLAZE 1M 5% 1/16W	
R827	1-218-976-11	METAL GLAZE 82K 5% 1/16W	
R828	1-218-984-11	METAL GLAZE 390K 5% 1/16W	
R829	1-218-984-11	METAL GLAZE 390K 5% 1/16W	
R830	1-218-984-11	METAL GLAZE 390K 5% 1/16W	
R833	1-218-969-11	METAL GLAZE 22K 5% 1/16W	
R834	1-218-971-11	METAL GLAZE 33K 5% 1/16W	
R835	1-218-969-11	METAL GLAZE 22K 5% 1/16W	
R836	1-218-976-11	METAL GLAZE 82K 5% 1/16W	
R837	1-218-990-11	METAL GLAZE 0 5% 1/16W	
R838	1-218-973-11	METAL GLAZE 47K 5% 1/16W	
R839	1-218-990-11	METAL GLAZE 0 5% 1/16W	
R840	1-218-973-11	METAL GLAZE 47K 5% 1/16W	
R841	1-218-965-11	METAL GLAZE 10K 5% 1/16W	
R842	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R843	1-218-971-11	METAL GLAZE 33K 5% 1/16W	
R848	1-218-990-11	METAL GLAZE 0 5% 1/16W	
R849	1-218-965-11	METAL GLAZE 10K 5% 1/16W	
R855	1-218-969-11	METAL GLAZE 22K 5% 1/16W	
R856	1-218-970-11	METAL GLAZE 27K 5% 1/16W	
R861	1-218-873-11	METAL CHIP 12K 0.50% 1/16W	
R862	1-218-905-11	METAL CHIP 270K 0.50% 1/16W	
R863	1-218-969-11	METAL GLAZE 22K 5% 1/16W	
R864	1-218-981-11	METAL GLAZE 220K 5% 1/16W	
R865	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R866	1-218-952-11	METAL GLAZE 820 5% 1/16W	
R867	1-218-967-11	METAL GLAZE 15K 5% 1/16W	
R868	1-218-966-11	METAL GLAZE 12K 5% 1/16W	

< VARIABLE RESISTOR >

Ref. No.	Part No.	Description	Remarks
RV801	1-241-480-11	RES, ADJ, CERMET 47K	
RV802	1-241-480-11	RES, ADJ, CERMET 47K	
RV803	1-241-480-11	RES, ADJ, CERMET 47K	
RV804	1-241-480-11	RES, ADJ, CERMET 47K	

< VIBRATOR >

Ref. No.	Part No.	Description	Remarks
X801	1-579-661-21	OSCILLATOR, CRYSTAL 4.43MHz	

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Ref. No.	Part No.	Description	Remarks
⚠	A-7071-973-A	VF-62P BOARD, COMPLETE	

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(Ref. No. 6,000 Seriese)

< CAPACITOR >

Ref. No.	Part No.	Description	Remarks
C951	1-135-181-21	TANTALUM CHIP 4.7uF 20% 6.3V	
C953	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C954	1-107-687-11	TANTAL. CHIP 3.3uF 20% 20V	
C955	1-164-357-11	CERAMIC CHIP 1000PF 5% 50V	
C957	1-162-967-11	CERAMIC CHIP 0.0033uF 10% 50V	
C958	1-104-917-11	TANTAL. CHIP 15uF 20% 20V	
C959	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C960	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C964	1-164-836-11	CERAMIC CHIP 6.8uF 16V	
C968	1-163-020-00	CERAMIC CHIP 0.0082uF 10% 50V	
C969	1-163-020-00	CERAMIC CHIP 0.0082uF 10% 50V	
C970	1-163-020-00	CERAMIC CHIP 0.0082uF 10% 50V	
C971	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C972	1-135-177-21	TANTALUM CHIP 1uF 20% 20V	
C973	1-162-921-11	CERAMIC CHIP 33PF 5% 50V	
C975	1-135-201-11	TANTALUM CHIP 10uF 20% 4V	
C980	1-165-128-11	CERAMIC CHIP 0.22uF 16V	
C990	1-107-687-11	TANTAL. CHIP 3.3uF 20% 20V	

< CONNECTOR >

Ref. No.	Part No.	Description	Remarks
CN951	1-573-347-11	CONNECTOR, FFC/FPC 7P	
* CN953	1-573-350-11	CONNECTOR, FFC/FPC 10P	
* CN955	1-569-438-11	CONNECTOR, BOARD TO BOARD (F) 8P	

< DIODE >

Ref. No.	Part No.	Description	Remarks
D951	8-719-043-70	DIODE MA6S121-(TX)	
D952	8-719-404-19	DIODE LN1251C	
D954	8-719-802-36	DIODE 1SS250	
D958	8-719-420-14	DIODE MA8082-M	
D959	8-719-420-14	DIODE MA8082-M	

< IC >

Ref. No.	Part No.	Description	Remarks
IC951	8-759-097-75	IC MB3789PFV-G-BND-ER	
IC954	8-759-998-98	IC LM358D	
IC955	8-759-710-79	IC NJM2107F	

< COIL >

Ref. No.	Part No.	Description	Remarks
L952	1-412-029-11	INDUCTOR CHIP 10uH	
L953	1-412-032-11	INDUCTOR CHIP 100uH	
L954	1-412-033-11	INDUCTOR CHIP 220uH	

< TRANSISTOR >

Ref. No.	Part No.	Description	Remarks
Q953	8-729-024-60	TRANSISTOR MTD6N15T4	
Q954	8-729-928-56	TRANSISTOR DTA123JE-TR	

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

< RESISTOR >

Ref. No.	Part No.	Description	Remarks
R951	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R952	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R953	1-216-849-11	METAL CHIP 220K 5% 1/16W	
R954	1-216-843-11	METAL CHIP 68K 5% 1/16W	
R955	1-216-819-11	METAL CHIP 680 5% 1/16W	
R957	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R958	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R959	1-218-744-11	METAL CHIP 150K 0.50% 1/16W	
R960	1-216-848-11	METAL CHIP 180K 5% 1/16W	
R961	1-216-850-11	METAL CHIP 270K 5% 1/16W	
R962	1-216-848-11	METAL CHIP 180K 5% 1/16W	
R963	1-216-840-11	METAL CHIP 39K 5% 1/16W	
R965	1-216-843-11	METAL CHIP 68K 5% 1/16W	
R966	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R967	1-218-903-11	METAL CHIP 220K 0.50% 1/16W	
R968	1-218-744-11	METAL CHIP 150K 0.50% 1/16W	
R971	1-218-891-11	METAL CHIP 68K 0.50% 1/16W	
R973	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R974	1-216-849-11	METAL CHIP 220K 5% 1/16W	
R975	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R978	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R979	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R980	1-216-804-11	METAL CHIP 39 5% 1/16W	
R981	1-216-830-11	METAL CHIP 5.6K 5% 1/16W	
R982	1-216-834-11	METAL CHIP 12K 5% 1/16W	
R983	1-218-897-11	METAL CHIP 120K 0.50% 1/16W	
R984	1-218-889-11	METAL CHIP 56K 0.50% 1/16W	
R991	1-216-296-91	METAL GLAZE 0 5% 1/8W	

< VARIABLE RESISTOR >

Ref. No.	Part No.	Description	Remarks
RV951	1-241-480-11	RES, ADJ, CERMET 47K	
RV953	1-230-523-11	RES, ADJ, METAL 10K	
RV954	1-230-523-11	RES, ADJ, METAL 10K	

< TRANSFORMER >

Ref. No.	Part No.	Description	Remarks
T951	1-423-813-11	TRANSFORMER, INVERTER	

****

MISCELLANEOUS
****

Ref. No.	Part No.	Description	Remarks
7	1-537-577-21	TERMINAL BOARD (JACK BLOCK)	
16	1-467-260-31	SWITCH BLOCK, CONTROL (FK3700)(AEP, UK)	
16	1-467-260-51	SWITCH BLOCK, CONTROL (FK3700)(E)	
26	1-467-599-11	REMOTE COMMANDER (RMT-709)	
56	1-467-259-51	SWITCH BLOCK, CONTROL (CF3700)	
64	1-649-184-11	FP-24 FLEXIBLE BOARD	
65	1-644-945-11	FP-581 FLEXIBLE BOARD	
102	1-649-182-11	FP-22 FLEXIBLE BOARD	
110	1-537-578-11	TERMINAL BOARD, BATTERY	
130	1-644-943-11	FP-550 FLEXIBLE BOARD	
138	1-649-183-11	FP-23 FLEXIBLE BOARD	
144	1-547-529-21	FILTER BLOCK, OPTICAL	
146	8-848-701-01	DEVICE, LENS LSV-110A	
224	1-645-057-11	FP-574 FLEXIBLE BOARD	
⚠BL951	1-519-746-21	TUBE, FLUORESCENT (0.7 INCH)	
IC721	A-7030-495-A	CCD BLOCK ASSY (AUTO) (ICX060AK) (CCD IMAGER)	
LCD901	8-753-010-01	LCX004AK-1	
MIC1	1-542-215-11	MICROPHONE, CONDENSER	
M901	A-7048-623-A	DRUM BLOCK ASSY (DGH-89B-R)	
M902	8-835-329-12	MOTOR, DC U-21A (CAPSTAN)	
M903	1-541-607-21	MOTOR, DC (LA12G-344VA)	
M904	1-547-655-11	IRIS (IRX-003)	
M906	8-835-491-02	MOTOR, STEPING SPB-01S01N (ZOOM)	
SE001	1-810-024-31	SENSOR, ANGULAR VELOCITY	
SE002	1-810-024-41	SENSOR, ANGULAR VELOCITY	

****

ACCESSORIES & PACKING MATERIALS
****

Ref. No.	Part No.	Description	Remarks
	3-757-407-11	MANUAL, INSTRUCTION(ENGLISH)(AEP, UK)	
	3-757-407-41	MANUAL, INSTRUCTION(FRENCH/DUTCH)(AEP)	
	3-757-407-51	MANUAL, INSTRUCTION(GERMAN/ITALIAN)(AEP)	
	3-757-407-61	MANUAL, INSTRUCTION(SPANISH/SWEDISH)(AEP)	
	3-757-673-51	MANUAL, INSTRUCTION(ENGLISH/SPANISH)(E)	
	3-757-673-61	MANUAL, INSTRUCTION(FRENCH/GERMAN)(E)	
	3-757-673-71	MANUAL, INSTRUCTION(ARABIC)(E)	
	3-757-673-81	MANUAL, INSTRUCTION(CHINESE)(E)	
*	3-955-792-01	CUSHION (LOWER)	
*	3-957-914-01	INDIVIDUAL CARTON	
	1-573-291-11	CONNECTOR, CONVERSION (AEP, UK)	
	1-575-334-11	CORD, CONNECTION (1.5m) (A/V connecting cable)	
	1-575-335-21	CORD, CONNECTION (1.5m) (S VIDEO connecting cable)	
	1-696-713-11	CORD, CONNECTION (FOR AC-V505)(AEP, UK)	
	3-704-235-01	LABEL, COUTION (UK)	
	3-712-673-01	SCREWDRIVER (E)	
	3-738-517-01	BELT (S), SHOULDER	
*	3-955-791-01	CUSHION, ACC	
	A-7003-529-A	RFU ADAPTOR (RFU-95AE)(E)	
**	AC-V505	AC POWER ADAPTOR(AEP, UK)	
**	AC-HS1	HANDYCAM STATION	
**	BCA-HS1	QUICK CHARGE BATTERY ADAPTOR (E)	
***	NP-500H	BATTERY PACK	

Note.

** MARK PARTS IS AVAILABLE FOR REPAIR SERVICE.

*** MARK PARTS IS AVAILABLE AS AN OPTIONAL ACCESSORY.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

SECTION 7
CAMERA SECTION ADJUSTMENTS

When performing adjustments, refer to the layout diagrams for adjustment related parts beginning from page 236.

7-1. PREPARATIONS BEFORE ADJUSTMENT (CAMERA SECTION)

7-1-1. List of Service Tools

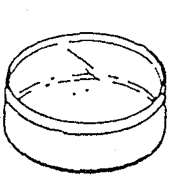
- Oscilloscope
- Adjusting driver
- Regulated power supply
- Color monitor
- Vectorscope
- Digital voltmeter

Ref. No.	Name	Parts Code	Usage
J-1	Filter for color temperature correction (C14)	J-6080-058-A	Auto white balance adjustment/check White balance adjustment/check
J-2	ND filter 1.0	J-6080-808-A	White balance check
	ND filter 0.3	J-6080-818-A	White balance check
J-3	Pattern box PTB-450	J-6082-200-A	
J-4	Color chart for pattern box	J-6020-250-A	
J-5	Adjusting remote commander (RM-95-remodeled partly)[Note 1]	J-6082-053-A	
J-6	Siemens star	J-6080-875-A	For checking the flange back
J-7	Measuring pin tool for camera section	J-6082-275-A	For adjustment the camera section Used together with J-6082-192-A.
J-8	Measuring pin tool for video section	J-6082-140-A	For adjustment the video section
J-9	Extension cable (30P, 0.8 mm)	J-6082-189-A	For extension between the LD-73P board (CN752) and VC-137P board (CN652)
J-10	Extension cable (28P, 0.8 mm)	J-6082-190-A or J-6082-186-A	For extension between theEZ-12P board (CN-75(W114)) and VC-137P board (CN305)
J-11	Extension cable (46P, 0.8 mm)	J-6082-272-A	For extension between the VC-137P board (CN306) and (CN-76)
J-12	Measuring pin tool for viewfinder	J-6082-192-A	For adjusing the viewfinder section
J-13	Extension cable (17P, 0.5 mm)	J-6082-194-A	For extension between the EZ-12P board (CN112) and JK BLOCK
J-14	Conversion connector (7P, 0.8 mm ⟷ 7P, 0.5 mm)	J-6082-199-A	VF-62P board (CN951) FP-603 conversion Used together with J-19.
J-15	Extension cable (6P, 1.5 mm)	J-6082-152-A	For extension between the DV-25P board (CN351) and FU-122P board (CN982) For extension between the EZ-12P board (CN111) and FU-122P board (CN981)
J-16	Mode selector A conversion connector	J-6082-167-A	For adjusting the mechanism section
J-17	Power Cord	J-6082-223-A	Connection between battery terminal and DC power
J-18	EZ Clip Tool	J-6082-224-A	Connection between EZ-12P board (CN113) and Handy Cam
J-19	FP-541 Flexible Board	1-644-942-11	Extension between VF-62P board (CN951) and VC-137P board (CN303) (Note 2)
J-20	Extension cable (36P, 0.8 mm)	J-6082-273-A	For extension between the AU-154P board (CN801) and VC-137P board (CN304)

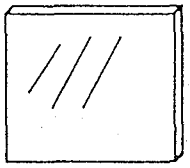
Note 1: If the micro processor IC in the adjusing remote commander is not the new micro processor (UPD7503G-C56-12), the pages cannot be switched.
In this case, replace with the new micro processor (8-759-148-35).

Note 2: J-14 (J-6082-199A) must be used in combination with J-19 (1-644-942-11).

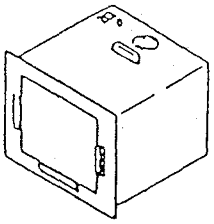
J-1



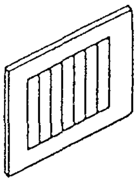
J-2



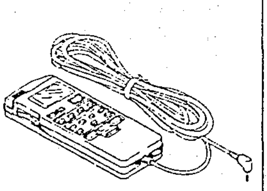
J-3



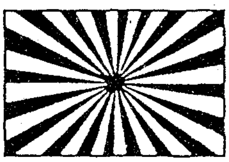
J-4



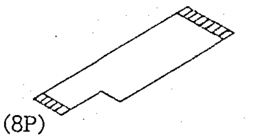
J-5



J-6

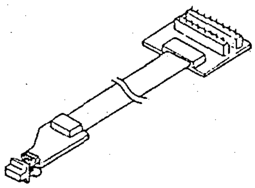


J-7



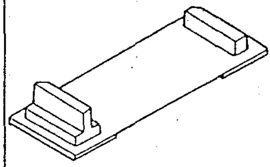
J-6082-275-A

J-8

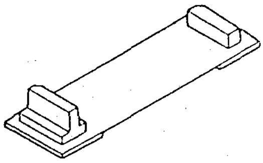


J-6082-140-A

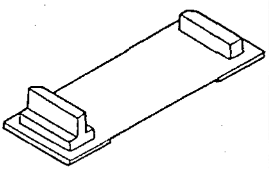
J-9



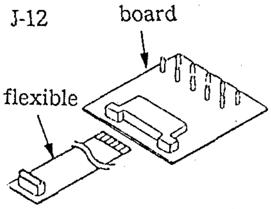
J-10



J-11

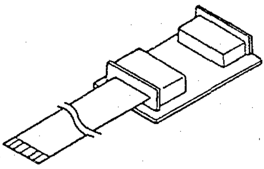


J-12

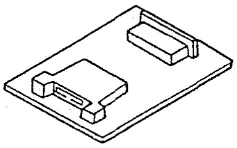

board
flexible

J-6082-192-A

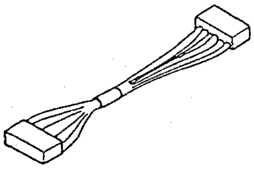
J-13



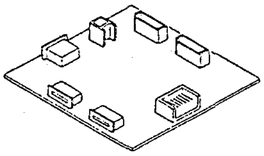
J-14



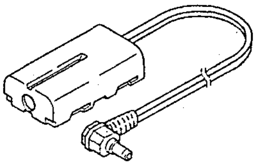
J-15



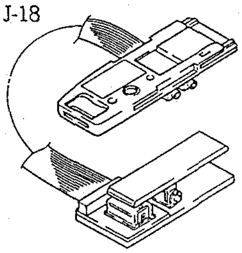
J-16



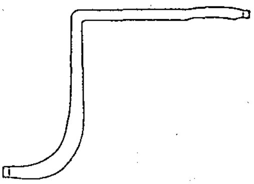
J-17



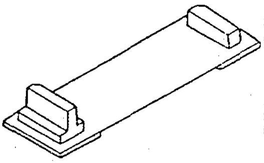
J-18



J-19



J-20



7-1-2. Preparations

Note 1: For further details of how to remove the cabinet and each board, refer to “2. Disassembly”.

Note 2: When adjusting only, the lens block and VC-137P board need not be taken apart.

1) Connect the equipments for adjusting as shown in Fig. 7-3.
2) The EVF (Electronic viewfinder) is required for checking the white balance mode and shutter speeds. However, by turning on the “data screen”, the same contents can be viewed on the TV monitor. If the EVF is not required, remove CN303 of the VC-137P board.
3) If the front panel ass’y obstructs the procedure, remove CN021 on the MA-217P board. It is possible to adjust the focus by turning the HOLD switch of the adjustment remote control to off (to the normal side).

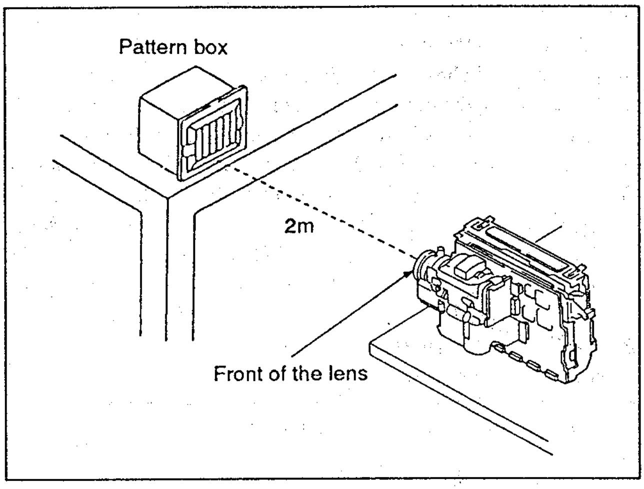

Pattern box
2m
Front of the lens

Fig. 7-2.

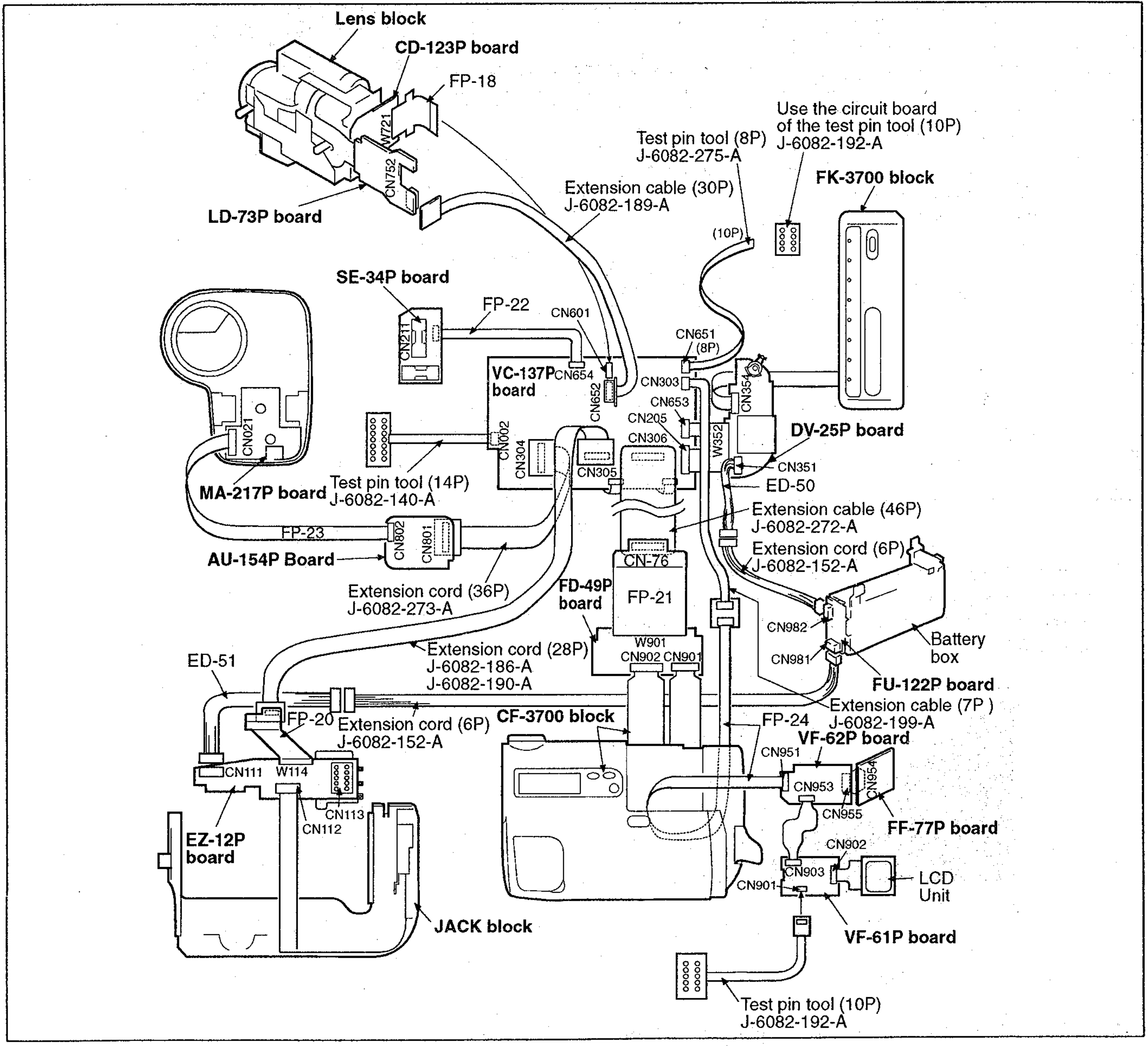

Lens block
CD-123P board
FP-18
W721
CN752
LD-73P board
Use the circuit board of the test pin tool (10P) J-6082-192-A
Test pin tool (8P) J-6082-275-A
FK-3700 block
Extension cable (30P) J-6082-189-A
(10P)
SE-34P board
FP-22
CN601
CN211
CN651 (8P)
VC-137P board
CN654
CN652
CN303
CN653
CN205
CN306
CN354
W352
DV-25P board
CN351
ED-50
CN002
CN304
CN305
CN021
MA-217P board
Test pin tool (14P) J-6082-140-A
Extension cable (46P) J-6082-272-A
Extension cord (6P) J-6082-152-A
FP-23
CN802
CN801
AU-154P Board
CN-76
FD-49P board
FP-21
Extension cord (36P) J-6082-273-A
CN982
Battery box
CN981
W901
CN902
CN901
Extension cord (28P) J-6082-186-A J-6082-190-A
ED-51
FU-122P board
Extension cable (7P) J-6082-199-A
FP-20
Extension cord (6P) J-6082-152-A
CF-3700 block
FP-24
VF-62P board
CN951
CN953
CN954
CN955
CN111
W114
CN113
CN112
FF-77P board
CN902
EZ-12P board
CN903
CN901
LCD Unit
JACK block
VF-61P board
Test pin tool (10P) J-6082-192-A

Fig. 7-3.

7-1-3. Precautions

1. Switch settings

Adjust the switches to the following positions, and adjust without loading the cassette tape, unless specified otherwise.

1. Canera/video power switch (CF-3700 BLOCK S01) · Camera
2. Standby switch (CF-3700 BLOCK S04) ·········· Standby
3. Automatic lock switch (CF-3700 BLOCK S07)········ Off
4. Focus button (CF-3700 BLOCK S14) ············· Manual
5. Program AE button (CF-3700 BLOCK S12) ··········· Off
6. Brightness button (CF-3700 BLOCK S13) ······ Automatic

2. Adjusting Procedure

Adjust in the given order.

3. Subject

1) Color bar chart (Standard picture frame)
   Adjust the picture frame as shown in Fig. 7-4. if adjustments are performed using the color bar chart.
   (Standard picture frame)
2) White pattern (Standard picture frame)
   Remove the color bar chart from the pattern box in order to display the white pattern. (Do not operate the zoom lens during this step.)

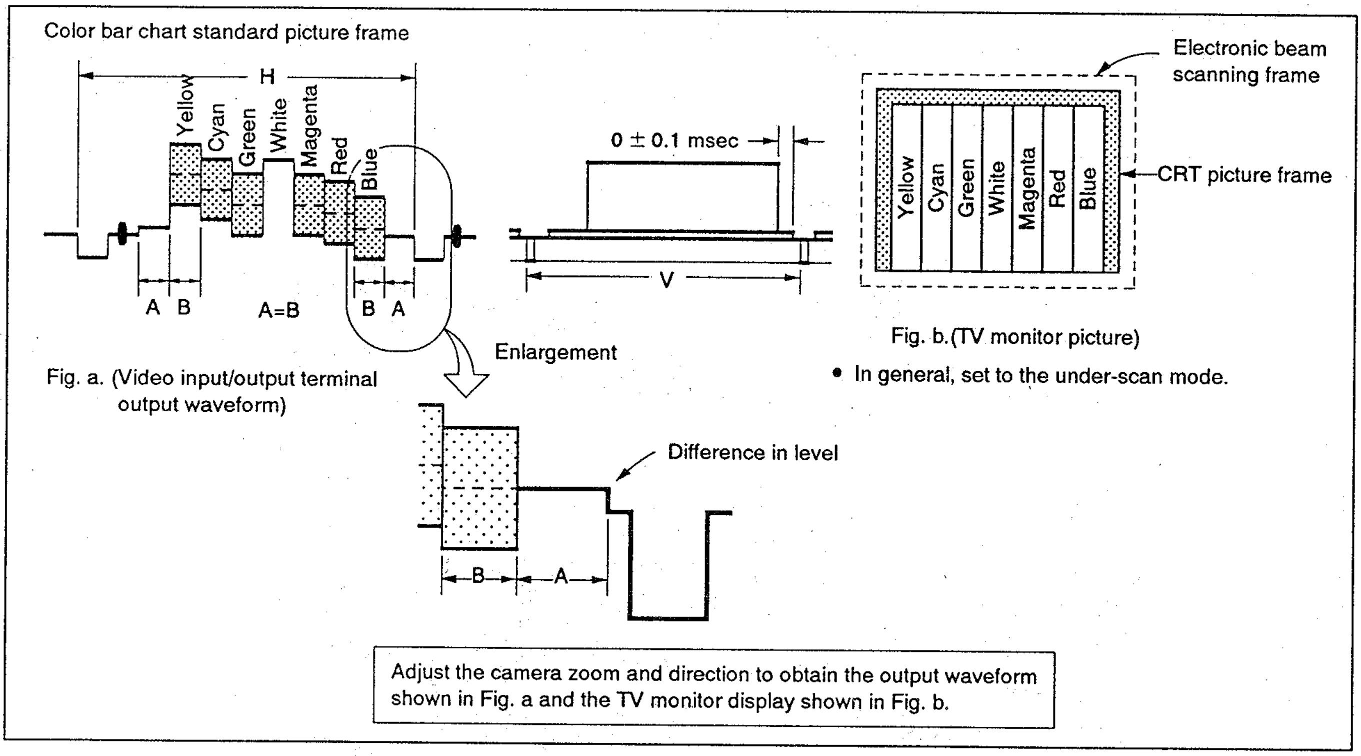

Color bar chart standard picture frame
H
Yellow
Cyan
Green
White
Magenta
Red
Blue
A
B
A=B
B
A
Enlargement
Difference in level
B
A
0 ± 0.1 msec
V
Electronic beam scanning frame
Yellow
Cyan
Green
White
Magenta
Red
Blue
CRT picture frame

Fig. a. (Video input/output terminal output waveform)

Fig. b.(TV monitor picture)

- In general, set to the under-scan mode.

Adjust the camera zoom and direction to obtain the output waveform shown in Fig. a and the TV monitor display shown in Fig. b.

Fig. 7-4.

3) Chart for flange back adjustment (Clear chart)
   Combine a white A0 size (1189 mm× 841 mm) imitation Japanese vellum to a black one, and make the chart shown in Fig. 7-5.

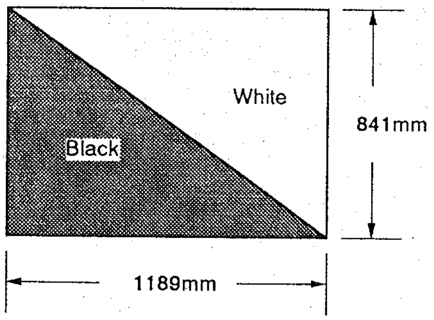

White
Black
841mm
1189mm

Fig. 7-5.

Note: Use non-reflecting and matted imitation Japanese vellum that are above A0. When making the chart, make sure that the line between the black and white is even.

7-1-4. Adjusting Remote Commander

The camera section is adjusted by changing the constant or coefficient of the digital signal processing calculation, or modifying the output boltage of the EVR IC (VC-137P board IC654). This is controlled by the camera micro processor (VC-137P board IC653), which reads the data written in the nonvolatile memory (VC-137P board IC651: EEPROM), and transmits it to the digital signal processing circuit and EVR.

To perform adjustments, adjustment data written in the nonvolatile memory must be rewritten, using the adjusting remote commander.

The adjusting remote commander uses the remote commander signal line (LANC) to communicate mutually with the camera microprocessor. The page, address and the up/down commands of the data are transmitted from the adjusting remote commander to the camera micro processor. And, the page, address, and data are transmitted for the vice versa.

1. Using the adjusting remote commander

1) Connect the adjusting remote commander to the remote control terminal JACK BLOCK.
2) Adjust the HOLD switch of the adjusting remote commander to "HOLD" (SERVICE position).

If it has been properly connected, the LCD on the adjusting remote commander will display as shown in Fig. 7-6.

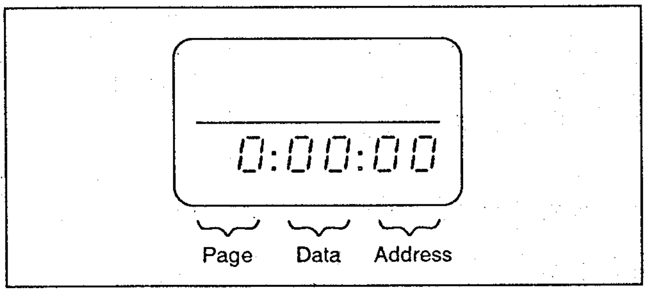


Fig. 7-6.

3) Operate the adjusting remote commander as follows.
   - Changing the page
     The page increases when the EDIT SEARCH+ button is pressed, and decreases when the EDIT SEARCH– button is pressed. There are altogether 16 pages, from 0 to F.

Hexadecimal notation	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
LCD Display	0	1	2	3	4	5	6	7	8	9	A	b	c	d	E	F
Decimal notation conversion value	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Table 7-1.

   - Changing the address
     The address increases when the FF (►►) button is pressed, and decreases when the REW (◄◄) button is pressed. There are altogether 256 addresses, from 00 to FF.
   - Changing the data (Data setting)
     The data increases when the PLAY (►) button is pressed, and decreases when the STOP (■) button is pressed.
     There are altogether 256 data, from 00 to FF.
   - Writing the adjustment data
     The PAUSE button must be pressed to write the adjustment data (F page) in the nonvolatile memory.
     (The new adjustment data will not be recorded in the nonvolatile memory if this step is not performed.)
4) Select page: 6, address: 00, and adjust the data to 01. This releases the write protect of page F, and enables the camera section (Addresses 01 to EF of page F) to be adjusted.
5) After compleing all adjustments, turn off the main power supply once.This releases the adjustment mode (other than page F).

2. Precautions upon using the adjusting remote commander

Mishandling of the adjusting remote commander may erase the correct adjustment data at times. To prevent this, it is recommended that all adjustment data be noted down before beginning adjustments and new adjustment data after each adjustment.

7-1-5. Page F Address List

Note 1: The data already listed in the adjustment data memo column are fixed values.

Note 2: The adjustment data initial values are values just after executing "Page F Data Initialization" and "Page F Data Modification". They are different from the values after executing all adjustments.

Note 3: in some cases, data have been input to the page F addresses EB to EF. This has no relation to the adjustments.

<table>
<tr><th rowspan="2">Address</th><th rowspan="2">Name</th><th rowspan="2">Function
[ ] contains the adjustment voltage output terminal</th><th colspan="2">Adjustment data</th></tr>
<tr><th>Initial value</th><th>Memo column</th></tr>
<tr><td>00</td><td>SET ID</td><td>Set ID</td><td>4E</td><td>4E</td></tr>
<tr><td>01</td><td>NT PAL</td><td>Note 3</td><td>A3</td><td>A3</td></tr>
<tr><td>02</td><td>FT SW</td><td>DDS display mode switching<table><tr><th>Data</th><th>Mode</th></tr><tr><td>00</td><td>Normal</td></tr><tr><td>BB</td><td>Focus position adjustment</td></tr></table></td><td>00</td><td></td></tr>
<tr><td>03</td><td>FADER LEVEL</td><td>AE REF level change in fader</td><td>E0</td><td>E0</td></tr>
<tr><td>04</td><td>FADER END TIME</td><td>AE REF modulation time setting in fader</td><td>10</td><td>10</td></tr>
<tr><td>05</td><td>CORE Y GAIN</td><td>Camera core Y gain</td><td>3F</td><td>3F</td></tr>
<tr><td>06</td><td>VSUB</td><td>CCD imager V SUB voltage adjustment [IC654 ③]</td><td>80</td><td></td></tr>
<tr><td>07</td><td>VPGH</td><td>CCD imager PG voltage adjustment [IC654 ④]</td><td>80</td><td></td></tr>
<tr><td>08</td><td>VREF Y</td><td>Camera core Y D/A reference voltage, SYNC level adjustment [IC654 ⑤]</td><td>80</td><td>80</td></tr>
<tr><td>09</td><td>VREF C</td><td>Camera core camera D/A reference voltage, burst level adjustment [IC654 ⑥]</td><td>7A</td><td>7A</td></tr>
<tr><td>0A</td><td>HALL GAIN</td><td>Hall amplifier gain adjustment [IC654 ⑦] } HALL adjustment</td><td>80</td><td></td></tr>
<tr><td>0B</td><td>HALL OFFSET</td><td>Hall amplifier off set adjustment [IC654 ⑧]</td><td>80</td><td></td></tr>
<tr><td>0C</td><td>LOWLIGHT START</td><td>Low illuminance level modulation start setting</td><td>6A</td><td>6A</td></tr>
<tr><td>0D</td><td>REF 2V</td><td>2V reference voltage for hall element IRIS circuit</td><td>68</td><td>68</td></tr>
<tr><td>0E</td><td>AD REF</td><td>Black level during A/D conversion Digital clump Ref</td><td>A0</td><td>A0</td></tr>
<tr><td>0F</td><td>CORE DEFTH</td><td>CCD correction horizontal correlated control</td><td>04</td><td>04</td></tr>
<tr><td>10</td><td>CORE OTHER</td><td>Various camera core mode settings</td><td>54</td><td>54</td></tr>
<tr><td>11</td><td>CORE APCNH</td><td>Horizontal aperture setting</td><td>B5</td><td></td></tr>
<tr><td>12</td><td>CORE APCNV</td><td>Vertical aperture setting</td><td>3F</td><td>3F</td></tr>
<tr><td>13</td><td>CORE EFFECT</td><td>Camera core special effects control</td><td>A0</td><td>A0</td></tr>
<tr><td>14</td><td>CORE MATR</td><td>RED matrix constant</td><td>6D</td><td></td></tr>
<tr><td>15</td><td>CORE MATB</td><td>BLUE matrix constant</td><td>26</td><td></td></tr>
<tr><td>16</td><td>CORE BURST LEVEL</td><td>BURST level setting</td><td>2B</td><td>2B</td></tr>
<tr><td>17</td><td>CORE CHROMA DLY</td><td>Y/C delay adjustment</td><td>2D</td><td>2D</td></tr>
<tr><td>18</td><td>CORE Y SETUP</td><td>Set up level setting</td><td>04</td><td>02</td></tr>
<tr><td>19</td><td>CORE VHAPCN</td><td>Slice and level of aperture signal</td><td>16</td><td>16</td></tr>
</table>

Table 7-2 (1).

Address	Name	Function [ ] contains the adjustment voltage output terminal		Adjustment data	
				Initial value	Memo column
1A	B-Y HUE	B–Y HUE	Color reproductivity adjustments	08	08
1B	R-Y HUE	R–Y HUE		13	13
1C	B-Y GAIN	R–Y GAIN		A4	A4
1D	B-Y GAIN	B–Y GAIN		CF	CF
1E	CS/APCN CUT	Low illuminance aperture and chroma suppress level		22	22
1F	NEXT DEF BIT	CCD imager correction pattern	CCD imager correction data writing	00	
20	CCD DEFECT0	CCD imager correction data		00	
21	CCD DEFECT1	CCD imager correction data		00	
22	CCD DEFECT2	CCD imager correction data		00	
23	CCD DEFECT3	CCD imager correction data		00	
24	CCD DEFECT4	CCD imager correction data		00	
25	CCD DEFECT5	CCD imager correction data		00	
26	CCD DEFECT6	CCD imager correction data		00	
27	CCD DEFECT7	CCD imager correction data		00	
28	CCD DEFECT8	CCD imager correction data		00	
29	CCD DEFECT9	CCD imager correction data		00	
2A	CCD DEFECT10	CCD imager correction data		00	
2B	CCD DEFECT11	CCD imager correction data		00	
2C	CCD DEFECT12	CCD imager correction data		00	
2D	CCD DEFECT13	CCD imager correction data		00	
2E	CCD DEFECT14	CCD imager correction data		00	
2F	CLPFLG	Digital clamp mode setting		02	02
30	AD MIN	Offset minimum value setting		50	50
31	C SHIFT	C shift amount setting		06	06
32	Y SHIFT	Y shift amount setting		03	
33	LOWLIGHT START2	Low illuminance REF level modulation start setting 2		80	80
34	LOWLIGHT CS	Low illuminance color erasure setting		40	40
35	LOWLIGHT LEVEL	Low illumination S/N correction setting		C0	C0
36	DEFECT DELAY	Compensation pulse delay setting		00	00
37	APCN4 E ZOOM	Not used		00	00
38	RG3200 H	3200k Red G reference data H	Auto white balance reference data input	30	
39	RG3200 L	3200k Red G reference data L		00	
3A	BG3200 H	3200k Blue G reference data H		58	
3B	BG3200 L	3200k Blue G reference data L		00	
3C	SPEED S	3200k Green reference data H		20	20
3D	SPEED L	3200k Green reference data L		20	20
3E	3200 OFFSET	PRE WHITE Offset		89	89
3F	TRAN SPEED	High speed trace		02	02
40	NORM R	R regular correction coefficient, reference 80h	Auto white balance adjustment	8F	
41	NORM B	B regular correction coefficient, reference 80h		6C	
42	INDOOR S	Indoor determination shutter data		00	00
43	OUTDOOR S	Outdoor determination shutter data		00	00
44	INDOOR L	Indoor determination hall data	IRIS IN/OUT adjustment 1	36	
45	OUTDOOR L	Outdoor determination hall data		3C	

Table 7-2 (2).

<table>
<tr><th rowspan="2">Address</th><th rowspan="2">Name</th><th rowspan="2">Function
[ ] contains the adjustment voltage output terminal</th><th colspan="2">Adjustment data</th></tr>
<tr><th>Initial value</th><th>Memo column</th></tr>
<tr><td>46</td><td>G LEVEL</td><td>High luminance Green integral level</td><td>02</td><td>02</td></tr>
<tr><td>47</td><td>G WIDTH</td><td>High luminance Green integral level range</td><td>03</td><td>03</td></tr>
<tr><td>48</td><td>MAT HUE</td><td>Variable linear matrix HUE coefficient } Linear matrix adjustment</td><td>00</td><td>00</td></tr>
<tr><td>49</td><td>MAT GAIN</td><td>Variable linear matrix GAIN coefficient</td><td>00</td><td>00</td></tr>
<tr><td>4A</td><td>ADJ RCONT</td><td>Direct Output specification (RED)</td><td>35</td><td>35</td></tr>
<tr><td>4B</td><td>B DIFFERENCE</td><td>Reference difference from OUTDOOR fixed value</td><td>0A</td><td>0A</td></tr>
<tr><td>4C</td><td>BOTTOM SLP R</td><td>Slant R coefficient of drawing frame bottom</td><td>30</td><td>30</td></tr>
<tr><td>4D</td><td>BOTTOM SLP B</td><td>Slant B coefficient of drawing frame bottom</td><td>58</td><td>58</td></tr>
<tr><td>4E</td><td>MIDDLE SLP R</td><td>Slant R coefficient of drawing frame middle</td><td>62</td><td>62</td></tr>
<tr><td>4F</td><td>MIDDLE SLP B</td><td>Slant B coefficient of drawing frame middle</td><td>47</td><td>47</td></tr>
<tr><td>50</td><td>TOP SLP R</td><td>Slant R coefficient of drawing frame top</td><td>6C</td><td>6C</td></tr>
<tr><td>51</td><td>TOP SLP B</td><td>Slant B coefficient of drawing frame top</td><td>1A</td><td>1A</td></tr>
<tr><td>52</td><td>KEIKO R</td><td>Slant R coefficient of drawing frame fluorescent lamp</td><td>66</td><td>66</td></tr>
<tr><td>53</td><td>KEIKO B</td><td>Slant B coefficient of drawing frame fluorescent lamp</td><td>18</td><td>18</td></tr>
<tr><td>54</td><td>BOTTOM UP</td><td>Upper value of drawing frame bottom</td><td>8C</td><td>8C</td></tr>
<tr><td>55</td><td>BOTTOM DWN</td><td>Lower value of drawing frame bottom</td><td>6B</td><td>6B</td></tr>
<tr><td>56</td><td>MIDDLE UP</td><td>Upper value of drawing frame middle</td><td>B8</td><td>B8</td></tr>
<tr><td>57</td><td>MIDDLE DWN</td><td>Lower value of drawing frame middle</td><td>9F</td><td>9F</td></tr>
<tr><td>58</td><td>TOP UP</td><td>Upper value of drawing frame top</td><td>80</td><td>80</td></tr>
<tr><td>59</td><td>TOP DWN</td><td>Lower value of drawing frame top</td><td>66</td><td>66</td></tr>
<tr><td>5A</td><td>KEIKO</td><td>Lower value of output frame fluorescent lamp output</td><td>6C</td><td>6C</td></tr>
<tr><td>5B</td><td>KEIKO DWN</td><td>Lower value of drawing frame fluorescent lamp</td><td>5C</td><td>5C</td></tr>
<tr><td>5C</td><td>R TOP LMT</td><td>Upper value of drawing frame R</td><td>6C</td><td>6C</td></tr>
<tr><td>5D</td><td>R DWN LMT</td><td>Lower value of drawing frame R</td><td>20</td><td>20</td></tr>
<tr><td>5E</td><td>B TOP LMT</td><td>Upper value of drawing frame B</td><td>83</td><td>83</td></tr>
<tr><td>5F</td><td>B IN TOP</td><td>Upper value of INDOOR drawing frame B</td><td>67</td><td>67</td></tr>
<tr><td>60</td><td>B IN MAX</td><td>Upper value of INDOOR output frame B</td><td>5C</td><td>5C</td></tr>
<tr><td>61</td><td>B OUT MIN</td><td>Lower value of OUTDOOR output frame B</td><td>5C</td><td>5C</td></tr>
<tr><td>62</td><td>B OUT DWN</td><td>Lower value of OUTDOOR drawing frame B</td><td>4A</td><td>4A</td></tr>
<tr><td>63</td><td>B DWN LMT</td><td>Lower value of drawing frame B</td><td>20</td><td>20</td></tr>
<tr><td>64</td><td>ADJ BCONT</td><td>Direct OUTPUT specification (BLU)</td><td>50</td><td>50</td></tr>
<tr><td>65</td><td>T M DIVID</td><td>Border between top and middle of drawing frame</td><td>5B</td><td>5B</td></tr>
<tr><td>66</td><td>B M DIVID</td><td>Border between middle and bottom of drawing frame</td><td>3C</td><td>3C</td></tr>
<tr><td>67</td><td>DELAY TIME</td><td>Auto white balance tracking speed<table><tr><th>Data</th><th>Mode</th></tr><tr><td>10</td><td>Normal</td></tr><tr><td>01</td><td>High speed drawing</td></tr></table></td><td>0A</td><td>0A</td></tr>
<tr><td>68</td><td>B IN MIN</td><td>INDOOR output frame B bottom</td><td>33</td><td>33</td></tr>
<tr><td>69</td><td>OUT HYS OFF</td><td>OUTDOOR hysteresis off difference</td><td>0C</td><td>0C</td></tr>
<tr><td>6A</td><td>OUT B HYS</td><td>OUTDOOR hysteresis amount</td><td>06</td><td>06</td></tr>
<tr><td>6B</td><td>AWB MODE</td><td>Auto white balance adjustment mode<table><tr><th>Data</th><th>Mode</th></tr><tr><td>00</td><td>Normal</td></tr><tr><td>D0</td><td>AWB adjustment</td></tr><tr><td>F1</td><td>AWB all tracking</td></tr></table></td><td>E0</td><td>E0</td></tr>
</table>

Table 7-2 (3).

Address	Name	Function [ ] contains the adjustment voltage output terminal	Adjustment data	
			Initial value	Memo column
6C	IN B HYS	INDOOR hysteresis data (B)	04	04
6D	IN R HYS	INDOOR hysteresis data (R)	02	02
6E	KAKE NORM R	Fixed multiplication of normalization correction coefficient (R)	20	20
6F	KAKE NORM B	Fixed multiplication of normalization correction coefficient (B)	40	40
70	AE FUNCTION1	bit : 0 AE lock OFF/ON bit : 1 Flicker reduction ON/OFF bit : 2 FADER correction ON/OFF bit : 3 Low light level correction ON/OFF bit : 4 FUZZY iris control ON/OFF bit : 5 Phase correction ON/OFF bit : 6 ZOOM correction ON/OFF bit : 7 Auto shutter OFF/ON	02	02
71	FUNCTION2	bit : 0 VAP/VISTA OFF/ON bit : 1 VISTA shutter variable OFF/ON bit : 2 EV correction function OFF/ON bit : 3 EV correction gain stop 3 dB/1.5 dB bit : 4 High-light picture correction OFF/ON	13	13
72	AE REF H	AE reference data (High)	1B	1B
73	HIGHLIT LEVEL	High-light level modulation	50	50
74	AE MIN	AGC gain position	2F	
75	AGC MIN	AGC MAX gain position	D4	D4
76	IRIS MIN H	Auto shutter data (Iris limiter (H))	40	40
77	AE MAX	AE level MAX limiter	A0	A0
78	YAKEI LEVEL	Night scene mode AGC MAX limiter	40	40
79	JITEISU DOWN	Loop response time constant (CLOSE end)	28	28
7A	JITEISU UP	Loop response time constant (OPEN end)	0D	0D
7B	ORETEN SET	Change point of time constant due to error data	13	13
7C	OMOMIWAKU0	Weighting due to three-frame setup (upper)	40	40
7D	OMOMIWAKU1	Weighting due to three-frame setup (surround)	FF	FF
7E	AFC WIDE	Coefficient on ANF integrator loop	03	03
7F	AFC GAIN	ANF loop gain	01	01
80	AFC LIMIL	ANF error data limiter	60	60
81	DELTA GAIN	Gain smoothing data	08	08
82	ZOOM DROP1	Correction for lens incident light (W-center)	55	55
83	ZOOM DROP2	Correction for lens incident light (center-T)	18	18
84	HIST P KEISU	Setup data for FUZZY HIST extraction (P)	40	40
85	HIST H KEISU	Setup data for FUZZY HIST extraction (H)	E0	E0
86	HIST L KEISU	Setup data for FUZZY HIST extraction (L)	90	90
87	FUZZY JITEISU	Response time constant to FUZZY iris control	08	08
88	BAIRITSU P	Multiplication setup on Hist P	80	80
89	FUZZY DATA1	Correction data for FUZZY iris control 1	90	90
8A	FUZZY DATA2	Correction data for FUZZY iris control 2	C0	C0
8B	FUZZY DATA3	Correction data for FUZZY iris control 3	B0	B0
8C	FUZZY DATA4	Correction data for FUZZY iris control 4	A0	A0
8D	FUZZY DATA5	Correction data for FUZZY iris control 5	80	80
8E	FUZZY DATA6	Correction data for FUZZY iris control 6	A0	A0
8F	FUZZY DATA7	Correction data for FUZZY iris control 7	98	98

Table 7-2 (4).

<table>
<tr><th rowspan="2">Address</th><th rowspan="2">Name</th><th rowspan="2" colspan="2">Function
[ ] contains the adjustment voltage output terminal</th><th colspan="2">Adjustment data</th></tr>
<tr><th>Initial value</th><th>Memo column</th></tr>
<tr><td>90</td><td>FUZZY DATA8</td><td colspan="2">Correction data for FUZZY iris control 8</td><td>90</td><td>90</td></tr>
<tr><td>91</td><td>FUZZY DATA9</td><td colspan="2">Correction data for FUZZY iris control 9</td><td>60</td><td>60</td></tr>
<tr><td>92</td><td>FUZZY DATA10</td><td colspan="2">Correction data for FUZZY iris control 10</td><td>40</td><td>40</td></tr>
<tr><td>93</td><td>HIGHLIT START</td><td colspan="2">Start setup for high-light scene modulation</td><td>58</td><td>58</td></tr>
<tr><td>94</td><td>HIGHLIT END</td><td colspan="2">Start setup for high-light scene modulation</td><td>88</td><td>88</td></tr>
<tr><td>95</td><td>IRIS OFFSET</td><td colspan="2">Iris table gain offset</td><td>28</td><td>28</td></tr>
<tr><td>96</td><td>IRIS PWM BIAS</td><td colspan="2">Iris PWM bias adj.</td><td>F6</td><td>F6</td></tr>
<tr><td>97</td><td>AGC AMP BIAS</td><td colspan="2">AGC amp bias adj.</td><td>FE</td><td>FE</td></tr>
<tr><td>98</td><td></td><td colspan="2">Not used</td><td>00</td><td>00</td></tr>
<tr><td>99</td><td>ZOOM LANC SPEED</td><td colspan="2">LANC zoom speed bit: 0-3 LANC standard, bit: 4-7 LANC High</td><td>72</td><td>72</td></tr>
<tr><td>9A</td><td>AF AT SW</td><td colspan="2">Impose tool display switching</td><td>00</td><td>00</td></tr>
<tr><td>9B</td><td>MAN CONTROL</td><td colspan="2">Manual focus variable bit: 0-3 threshold bit: 4-7 sensitivity</td><td>33</td><td>33</td></tr>
<tr><td>9C</td><td>AF MODE SW</td><td colspan="2">Test SW</td><td>00</td><td>00</td></tr>
<tr><td>9D</td><td>OFF FC</td><td>Focus offset lower</td><td rowspan="6">Flange back adjustments</td><td>00</td><td></td></tr>
<tr><td>9E</td><td>OFF FC</td><td>Focus offset upper</td><td>50</td><td></td></tr>
<tr><td>9F</td><td>LENZ WIDE</td><td>Zoom wide end lower</td><td>00</td><td></td></tr>
<tr><td>A0</td><td>LENS WIDE</td><td>Zoom wide end upper</td><td>01</td><td></td></tr>
<tr><td>A1</td><td>LENZ TELE</td><td>Zoom tele end lower</td><td>00</td><td></td></tr>
<tr><td>A2</td><td>LENZ TELE</td><td>Zoom tele end upper</td><td>03</td><td></td></tr>
<tr><td>A3</td><td>MF SPEED</td><td colspan="2">Manual focus gain</td><td>80</td><td>80</td></tr>
<tr><td>A4</td><td>ZM SPEED10</td><td colspan="2">Zoom speed</td><td>98</td><td>98</td></tr>
<tr><td>A5</td><td>ZM SPPED32</td><td colspan="2">Zoom speed</td><td>A0</td><td>A0</td></tr>
<tr><td>A6</td><td>ZM SPPED54</td><td colspan="2">Zoom speed</td><td>21</td><td>21</td></tr>
<tr><td>A7</td><td>ZM SPPED76</td><td colspan="2">Zoom speed</td><td>63</td><td>63</td></tr>
<tr><td>A8</td><td>ZM HYS</td><td colspan="2">Zoom speed hysteresis</td><td>00</td><td>00</td></tr>
<tr><td>A9</td><td>Z PHASE</td><td colspan="2">Focus mechanism end, flange back adjustment</td><td>08</td><td></td></tr>
<tr><td>AA</td><td>FCLIM</td><td colspan="2">Focus NEAR limit bit:0-3 CAM Number, bit: 4-7 proportional</td><td>84</td><td>84</td></tr>
<tr><td>AB</td><td>ADJ0</td><td colspan="2">For adjusting (ZOOM OFF MODE)<table><tr><th>Data</th><th>Mode</th></tr><tr><td>FE</td><td>Normal</td></tr><tr><td>01</td><td>Zoom position fixed</td></tr></table></td><td>FE</td><td>FE</td></tr>
<tr><td>AC</td><td>ADJ1</td><td colspan="2">For adjusting (WND A)</td><td>1E</td><td>1E</td></tr>
<tr><td>AD</td><td>ADJ2</td><td colspan="2">For adjusting (WND B)</td><td>5A</td><td>5A</td></tr>
<tr><td>AE</td><td>ADJ3</td><td colspan="2">For adjusting</td><td>00</td><td>00</td></tr>
<tr><td>AF</td><td>AF0</td><td colspan="2">Noise threshold bit: 0 – 3 Climbing threshold, Gain 3 < AGC < 5V</td><td>58</td><td>58</td></tr>
<tr><td>B0</td><td>AF1</td><td colspan="2">Focus motor movement amount</td><td>12</td><td>12</td></tr>
<tr><td>B1</td><td>AF2</td><td colspan="2">Core ring amount</td><td>08</td><td>08</td></tr>
<tr><td>B2</td><td>AF3</td><td colspan="2">Noise level</td><td>30</td><td>30</td></tr>
<tr><td>B3</td><td>AF4</td><td colspan="2">Climbing threshold bit: 0 – 3 Ref spec, bit: 4 – 7 Gain 0 < AGC < 3V</td><td>32</td><td>32</td></tr>
<tr><td>B4</td><td>AF5</td><td colspan="2">Wobbling amplitude</td><td>55</td><td>55</td></tr>
<tr><td>B5</td><td>AF6</td><td colspan="2">Wobbling IIR coefficient</td><td>03</td><td>03</td></tr>
<tr><td>B6</td><td>AF7</td><td colspan="2">Sync detection phase</td><td>01</td><td>01</td></tr>
<tr><td>B7</td><td>AF8</td><td colspan="2">Focus trigger phase</td><td>23</td><td>23</td></tr>
<tr><td>B8</td><td>AF9</td><td colspan="2">Wobbling FIR coefficient</td><td>03</td><td>03</td></tr>
<tr><td>B9</td><td>AF10</td><td colspan="2">AF speed threshold</td><td>18</td><td>18</td></tr>
</table>

Table 7-2 (5).

Address	Name	Function [ ] contains the adjustment voltage output terminal	Adjustment data	
			Initial value	Memo column
BA	AF11	Wobbling amplitude for testing	00	00
BB	AF12	High luminance gate level	FA	FA
BC	AF13	Motor speed for testing	FF	FF
BD	AF14	AF frame for testing	00	00
BE	AF15	AGC gain 1 to 3V	0A	0A
BF	AF16	AGC gain 3 to 5V	10	10
C0	AF17	AND for testing	FF	FF
C1	AF18	AF ID for testing	00	00
C2	AF19	Hall data close	A8	A8
C3	AF20	Hall data MIDDLE	9A	9A
C4	AF21	Hall data OPEN	7F	7F
C5	AF22	High luminance threshold	84	84
C6	LINEAR0	Limear motor intergral gain	02	02
C7	LINEAR1	Linear motor DC bias value	04	04
C8	LINEAR2	DC bias speed threshold	20	20
C9	LINEAR3	Linear motor integral threshold lower	18	18
CA	LINEAR4	Reset threshold	98	98
CB	LINEAR5	Error amount threshold	20	20
CC	LINEAR6	Speed threshold	20	20
CD	LINEAR7	Linear motor proportionate gain	DA	DA
CE	LINEAR8	MR output threshold	3C	3C
CF	LINEAR9	Micro step number	06	06
D0	ZOOM RIST	Electronic zoom MAX multiplication factor	81	81
D1	V CORE VALUE 1	Coring data 1L (vertical)	80	80
D2	V CORE VALUE	Coring data 1H (vertical)	00	00
D3	H CORE VALUE 1	Coring data 1L (horizontal)	80	80
D4	H CORE VALUE	Coring data 1H (horizontal)	00	00
D5	V CORE 2	Coring data 2 (vertical)	00	00
D6	H CORE 2	Coring data 2 (horizontal)	00	00
D7	V SENSOR GAIN	Angular speed sensor gain (vertical) } VISTA (camera-shake correct.) adj.	80	
D8	H SENSOR GAIN	Angular speed sensor gain (horizontal)	80	
D9	K TABLE	LPF feedback coefficient table: higher 4 bits : horizontal table, lower 4 bits : vertical table	21	21
DA	V CORE STILL 1	Stationary position coring data L (vertical)	80	80
DB	V CORE STILL	Stationary position coring data H (vertical)	00	00
DC	H CORE STILL 1	Stationary position coring data L (horizontal)	80	80
DD	H CORE STILL	Stationary position coring data H (horizontal)	00	00
DE	STILL VTR L	Stationary/camera-shake identifying threshold L	00	00
DF	STILL VTR	Stationary/camera-shake identifying threshold H	02	02
E0	EZMAREA SW	During electronic zoom mode, correction range selection	04	04
E1	NLLIM SW	Non-linear limiter switching	03	03
E2	HV DATA00	H-VISTA data (bit : 0-7)	91	91
E3	HV DATA01	H-VISTA data (bit : 8-15)	D3	D3
E4	HV DATA02	H-VISTA data (bit : 16-23)	04	
E5	V CORE WIDE L	WIDE end coring data L (vertical)	C0	

Table 7-2 (6).

Address	Name	Function [ ] contains the adjustment voltage output terminal	Adjustment data	
			Initial value	Memo column
E6	V CORE WIDE	WIDE end coring data L (vertical)	00	
E7	H CORE WIDE L	WIDE end coring data L (horizontal)	00	
E8	H CORE WIDE	WIDE end coring data H (horizontal)	00	00
E9	TILT JDG TERM	TILTING detemination period	33	33
EA	PAN JDG TERM	PANNING detemination period	33	33
EB	TILT THR		25	25
EC	PAN THR		25	25
ED	TILT THR ADJ		79	79
EE	PAN THR ADJ		79	79
EF	VISTA SW		01	01
F0		Input pins for set ID No. etc. Not related to operation of the set.	00	
F1			00	
F2			00	
F3			00	
F4			00	
F5			00	
F6			00	
F7			00	
F8			00	
F9			00	
FA			00	
FB			00	
FC			00	
FD			00	
FE			00	
FF			00	

Table 7-2 (7).

7-1-6. Page 6, Page 2 Address List

The camera adjustment mode can be set by setting the data in the following table to page 6 or 2.

(Example) By setting data: 01 to page: 6, address: 00, the write protect of page F, addresses 01 to DF can be released.

1. Page 6

Address	Name	Data	Function
00	Page F protect	00 01	Normal (Write protect released) Protect release of address 01 to EF of Page F
01	Camera adjustment switch **Note:** To execute this address adjustment mode, it is necessary to press the PAUSE button of the adjusting remote commander after setting the data.	00 01 03 05 07 09 0B 0D 0F 11 13 15 17 19 1B 2D	Normal IRIS OPEN, AGC HOLD IRIS CLOSE1, AGC HOLD IRIS CLOSE2, AGC MIN IRIS CLOSE3, AGC MAX ND0.5 SHUTTER (PAL=1/160, NTSC=1/190) ND0.8 SHUTTER (PAL=1/320, NTSC=1/380) AWB PRESET1: 3200K PRESET DATA input WB 3200K PRESET: Indoor white balance mode AWB PRESET2: 3200K PRESET DATA input preparations Flange back adjustment preparations Flange back adjustment execution 1/2000 shutter mode MAX GAIN adjustment mode Camera-shake sensor adjusting mode EEPROM PRE WRITE: Page F, Page E initial data writing
02	DDS display switching	00 02 03 04 05 0B 0C	Normal Color difference data display HALL DATA display R ratio display B ratio display ZOOM switch A/D value display (TELE side: E9 or more. WIDE side: 17 or less) Auto focusing display (01: Focusing, 00: Not focusing)
03	Weighing on/off	00 10	Weighting off Normal (Weighting on)
11	Page F data initialization completed display	00 01	Normal (Data can be initialized) Data initialized
12	Shutter mode	00 19	Normal 1/4000 shutter mode (After data of address 14 is set to C0.)
14	AE MODE	C0	Manual shutter mode
19	Chroma modulation stop	00 01	Normal Chroma modulation stop
21	Flange back adjustment completed display	00 01	Normal (Flange back adjustable) Flange back adjusted
25	Auto focus on/off	00 01	Nromal Auto focus off
26	MR sensor output check	00 08 Others	} Normal (∗ :0~F) Abnormal

Table 7-3.

2. Page 2

Category	Address	Adjustment Mode	Data	Function
01	37	VH address L		Title horizontal/vertical position (L)
01	38	VH address H		Title horizontal/vertical position (H)
01	39	Data transmission to SG	00	Normal
			01	Data transmission to SG begins

Note: The category is specified by the data of page 2, address 00.
(Example) To specify category 01, adjust to 01 the data of page 2, address 00.

Table 7-4.

7-1-7. Adjustment Connector

Most of the measuring points for the camera section adjustment are concentrated at CN651 of the VC-137 board.
Connect the oscilloscope, etc. via the measuring pin tool (J-6082-275-A). The following table lists the pin numbers and the signal names of CN651.

Pin No.	Signal Name	Pin No.	Signal Name
1	LANC SIG	2	LANC DC
3	LI 3V	4	NC
5	GND	6	C OUT
7	GND	8	Y OUT

Table 7-5.

7-1-8. How to turn off the camera-shake correction using adjustment remote

Order	Page	Address	Data	Procedure
1	6	32	02	Press the PAUSE button (Camera-shake OFF mode)
2	6	14	C0	Press the PAUSE button
3	6	12	00	Press the PAUSE button (electronic shutter OFF)

7-1-9. Data Processing

For some adjustments, the DDS display and the display data of the adjusting remote commander (hexadecimal numeral) must be calculated in order to obtain the adjustment data. In this case, after converting the hexadecimal numeral to a decimals numeral once, calculate and convert the result to a hexadecimal numeral, and use it as the adjustment data. Table 7-6 is the hexadecimal-decimal calculation table.

Hexadecimal-Decimal Conversion Table

②

The lower digits of the hexadecimal The upper digits of the hexadecimal	0	1	2	3	4	5	6	7	8	9	A (A)	B (b)	C (c)	D (d)	E (E)	F (F)
0	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
3	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
4	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
5	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
6	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
7	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
8	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
9	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
A(A)	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
① B(b)	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
C(c)	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
D(d)	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
E(E)	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
F(F)	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255

Note: ( ) contains the display of the adjusting remote commander.

(Example) When the DDS display or the display of adjusting remote commander is BD (b d).
As the upper digit of the hexadecimal numeral is B(b), and the lower digit is D (d), the meeting point "189" of ① and ② in the above table is the decimal numeral to be calculated.

Table 7-6.

7-2. CAMERA SYSTEM ADJUSTMENTS

1. Adjusting points when replacing main parts

When replacing the CCD imager or lens block, adjust the items indicated by ○ in the following table.

	When CCD imager is replaced	When lens block is replaced
V SUB adjustment	○	
V RG adjustment	○	
HALL adjustment		○
CCD imager correction data writing	○	
Flange back adjustment	○	○
IRIS IN/OUT adjustment	○	○
MAX GAIN adjustment	○	
Color reproductivity adjustment	○	
Auto white balance balance reference data input	○	
Auto white balance adjustment	○	

2. Power supply voltage check (DV-25P board)

Subject	Arbitrary
Measuring instrument	Digital voltmeter
D5V check	
Measurement point	Pins ㊱ and ㉟ of W352
Specified value	4.90 ± 0.15 Vdc
D4V check	
Measurement point	Pin ㉞ of W352
Specified value	3.95 ± 0.15 Vdc
CAM 5V check	
Measurement point	Pin ㊲ of W352
Specified value	4.85 ± 0.15 Vdc
CAM 15V check	
Measurement point	Pin ㉜ of W352
Specified value	15.0 ± 0.4 Vdc
CAM − 8.5V check	
Measurement point	Pin ㉝ of W352
Specified value	–8.5 ± 0.5 Vdc

Checking Method:

1) Check that each power supply voltage satisfies the specified value.
   If not, refer to “Video circuit, Power supply block adjustment”.

3. Page F data Initialization

Note: If the page F data has been initialized, all adjustments of the camera section must be carried out again.

Initializing method:

Order	Page	Address	Data	Procedure	Conditions
1				Turn off/on the main power supply	
2	**6**	**00**	**01**	**Releasing of protect.**	
3	6	01	2D	Press the PAUSE button. (Initializing the page F data. The data of addresses 01 to EF of page F will be initialized.)	
4	6	11		Check that the data is 01. (Display of data initialized.)	

Note: Initialize page F only when the nonvolatile memory (VC-137P board IC651 EEPROM) has been replaced.

Processing after initializing

Order	Page	Address	Data	Procedure	Conditions
1	6	01	00	Press the PAUSE button. (Releasing of initialization mode)	
2				After "Page F Data Modifications", carry out all adjustments of the camera section.	

Related Adjustments:
All camera adjustments of the camera section excluding "28 MHz origin oscillation adjustment".

4. Page F data modification

Some parts of the data (initial data) automatically written on page F by the initialization of the page F data will differ according to the version of the camera micro processor.
Change the data manually, and arrange it.

Order	Page	Address	Data	Procedure	Conditions
1	**6**	**00**	**01**	**Releasing of page F protect.**	
2	F	00 (NT PAL)	A3	Set each data to each address, and press the PAUSE button.	
		08 (VRE Y)	7A		
		09 (V REF C)	7A		
		16 (CORE BURST LEVEL)	2B		
		17 (CORE CHROMA DLY)	2D		
		18 (CORE Y SETUP)	02		
		1A (CORE B-Y HUE)	08		
		1B (CORE R-Y HUE)	13		
		1C (CORE R-Y GAIN)	A4		
		1D (CORE B-Y GAIN)	CF		
		1E (CS/APCN CUT)	22		
		2F (NEXT DEFBIT)	02		
		31 (C SHIFT)	06		
		34 (LOWLIGHT CS)	40		
		35 (LOWLIGHT LEVEL)	C0		
		3E (3200 OFFSET)	89		
		67 (DELAY TIME)	0A		
		6B (AWB MODE)	E0		
		70 (AF FUNCTION 1)	02		
		79 (GITEISU DOWN)	28		
		7A (GITEISU UP)	0D		
		AA (F CLIM)	84		
		B7 (AF8)	23		
		D9 (K TABLE)	21		
		E2 (HV DATA 00)	91		
		E3 (HV DATA 01)	D3		
		E7 (H CORE WIDE L)	C0		
		E9 (TILT JDG TERM)	33		
		EA (PAN JDG TERM)	33		
		EB (TILT THR)	25		
		EC (PAN THR)	25		
		ED (TILT THR ADJ)	79		
		EE (PAN THR ADJ)	79		
		EF (VISTA SW)	01		

Remarks: The versions of the camera micro processor (VC-137P board IC653) and the AF micro processor (LD-73P board IC751) VISTA microprocessor (VC-137P board IC652) can be distinguished using the following table.

- **Camera Micro processor**

Page	Address	Data	
6	10	11	Version 1.1

- **AF Micro processor**

Page	Address	Data	
6	20	1	Version 1.0

- **VISTA Micro processor**

Page	Address	Data	
6	30	20	Version 2.0

5. 28 MHz origin oscillation adjustment (VC-137P board)

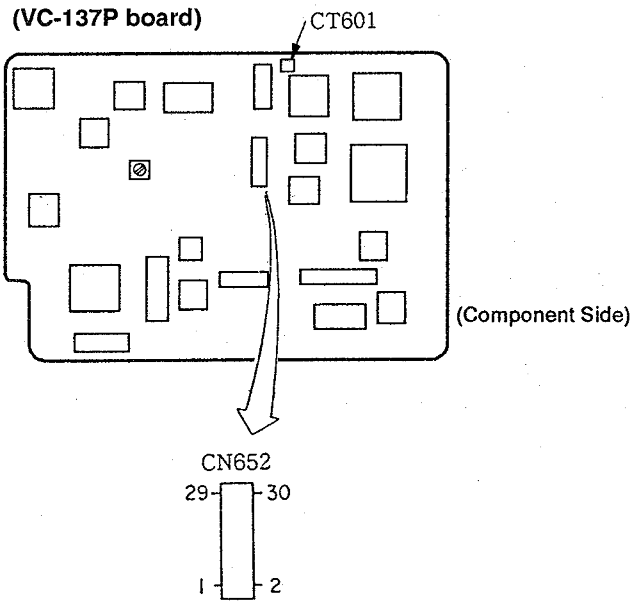
Purpose: Adjusts 28 MHz original oscillation for synchronizing clock.

Adjustment error: Loss of synchromization or loss of color.

Subject	Not required
Measurement Point	Pin ⑪ of CN652 (CL) (JL651)
Measuring Instrument	Frequency counter
Adjustment Element	CT601
Specified Value	14.18750 MHz ± 71Hz

Adjusting method:

Order	Adjusting element	Procedure	Conditions
1	CT601	Adjust the oscillation frequency to the specified value.	



VC-137P board (Component side)

Fig. 7-7.

6. V SUB adjustment (VC-137P board)

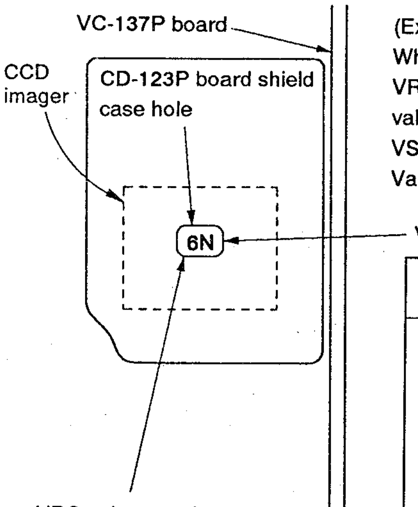
Purpose: Sets V SUB voltages for the specific CCD unit.
Adjustment error: Smear or coarse picture.

Subject	Not required
Measurement Point	Not required
Measuring Instrument	Not required
Adjustment Page	F
Adjustment Address	06 (V0SUB)
Specified Value	

Note: Check that the "camera-shaking correction" is turned off.

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**6**	**00**	**01**	**Relasing of protect.**	
2	F	06		Change the data with the PLAY and STOP buttons. Input data in the following table.	
3	F	06		Press the PAUSE button.	



(Example)
When the display is **6N.**
VRG Data
value=D9
VSUB Data
Value=A1

VSUB voltage code

Code	Voltage (Vdc)
E	71
F	77
G	7D
H	83
J	89
K	8F
L	95
M	9B
N	A1
P	A7
Q	AD
R	B3
S	B9
T	BF
U	C5
V	CB
W	D1
X	D7
Y	DD
Z	E3

VRG voltage code

Code	Data
1	34
2	4F
3	6A
4	84
5	9F
6	D9
7	D4

Fig. 7-8.

Related Adjustments:
"MAX GAIN adjustment", "Auto white balance data input", "Auto white balande adjustment", "Color reproductivity adjustment".

7. VRG adjustment (VC-137P board)

Purpose: See Camera Overall Adjustment Procedure
Adjustment error: No picture at low illumination (dark)

Subject	Not required
Measurement Point	Not required
Measuring Instrument	Not required
Adjustment Page	F
Adjustment Address	07 (VRG)
Specified Value	

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**6**	**00**	**01**	**Relasing of protect.**	
2	F	07		Change the data with the PLAY and STOP buttons. See page 214.	
3	F	07		Press the PAUSE button.	

8. CCD befect data writing

Subject	Not required
Adjustment Page	F
Adjustment Address	1F to 2E (CCD-DEFECT)

Write the CCD imager correction data in the following cases.

1. When the CCD imager has been replaced.
2. When the camera EEPROM (VC-137P board IC651) has been replaced.
3. When the page F data has been initialized.

In the case of 1, as the CCD imager for repair does not require the correction data, adjust the data of addresses 1F to 2E of page F and those of addresses E0 to EF of page D to "00".

Writing method:

Order	Page	Address	Data	Procedure	Conditions
1	**6**	**00**	**01**	**Releasing of page F protect.**	
2	F	1F~2E		Set data 00 to each address, and press the PAUSE button.	
3	**1**	**00**	**01**	Releasing of page D protect.	
4	D	E0~EF		Set data 00 to each address, and press the PAUSE button. (Writing the backup data)	

In the case of 2 to 4, read the CCD imager correction data writtten on addresses E0 to EF in page D and write them in addresses 1F to 2E.

Writing method:

Order	Page	Address	Data	Procedure	Conditions
1	**6**	**00**	**01**	**Releasing of page F protect.**	
2	D	E0~EF		Read the CCD imager correction data.	
3	F	1F 20 21 ⋮ 2E		Set the data of address E0 of page D, and press the PAUSE button. Set the data of address E1 of page D, and press the PAUSE button. Set the data of address E2 of page D, and press the PAUSE button. ⋮ Set the data of address EF of page D, and press the PAUSE button.	

9. HALL adjustment

Purpose: Variation of the HALL element outputs is removed by adjusting amp gain and offset. HALL elements detect the lens iris position.

Adjustment error: Oscillation of iris, or incorrect white balance at indoor = outdoor.

Subject	Not required
Measurement Point	DDS display of EVF or TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	0A (HALL GAIN) 0B (HALL OFFSET)
Specified Value	33 to 37 during IRIS OPEN B8 to BC during IRIS CLOSE

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**6**	**00**	**01**	**Releasing of protect.**	
2	6	02	03	Set the HALL DATA display mode.	
3	6	01	03	Press the PAUSE button. (Setting the IRIS CLOSE mode)	
4	F	0B	80	Press the PAUSE button. (HALL OFFSET data initial setting)	
5	F	0A	40	Read the DDS display data (Note 1) and take it as W2.	IRIS CLOSE mode
6	F	0A	30	Read the DDS display data and take it as W1.	IRIS CLOSE mode
7	6	01	01	Press the PAUSE button. (Setting the IRIS OPEN mode)	
8	F	0A	30	Read the DDS display data and take it as K1.	IRIS OPEN mode
9	F	0A	40	Read the DDS display data and take it as K2.	IRIS OPEN mode
10				Convert W1, W2, K1, K2 to decimal numerals, and obtain W1′, W2′, K1′, K2′. (Refer to Table 7-7. “Hexadecimal-Decimal Conversion Table”)	
11				Calculate X1′ using the following equations (Decimal calculation). $A'=W2'+K1'-W1'-K2'$ ·········· Equation 1 $B'=W1'-K1'$ ···················· Equation 2 $X1'=\frac{2128+(48+A')-(16\times B')}{A}$ ······ Equation 3	
12				Convert X1′ to a hexadecimal numeral, and obtain X1. (Round off to a whole number)	
13	F	0A		Set the data to X1 (obtained at step 12).	
14	F	0A		Press the PAUSE button.	
15	F	0B		Change the data with the PLAY and STOP buttons, and adjust the DDS display data to 35.	IRIS OPEN mode
16	6	0B		Press the PAUSE button.	
17	6	01	03	Press the PAUSE button. (Setting the IRIS CLOSE mode)	
18				If the DDS display data is B8 to BC, it indicates the end of adjustments. Perform “Processing after Adjustments”. If not, carry out step 19 onwards with the DDS display data as W0.	IRIS CLOSE mode

Note 1: Lower 2 digits of the data displayed at the bottom right of the EVF or TV monitor.

Order	Page	Address	Data	Procedure	Conditions
19				Convert W0 to a decimal numeral, and obtain W0′.	
20				Calculate X2′ using the following equations (decimal numeral calculation). $C'=W0'-B'-53$ ···················· Equation 4 $X2'=\frac{(133-B')\times(X1'-48)+48\times C'}{C'}$ ···· Equation 5 (X1′ and B′ are values obtained from equations 2 and 3 at step 11)	
21				Convert X2′ to a hexadecimal numeral, and obtain X2. (Round off to a whole number)	
22	F	0A		Set the data to X2 (obtained at step 21).	
23	F	0A		Press the PAUSE button.	
24	F	0B		Change the data with the PLAY and STOP buttons, and adjust the DDS display data to BA.	IRIS CLOSE mode
25	F	0B		Press the PAUSE button.	
26	6	01	01	Press the PAUSE button. (Setting the IRIS OPEN mode)	
27				Check that the DDS display data is 33 to 37.	IRIS OPEN mode

Processing after Adjustments:

Order	Page	Address	Data	Procedure	Conditions
1	6	02	00	Releasing of HALL DATA display mode.	
2	6	01	00	Press the PAUSE button. (Releasing the IRIS CLOSE/OPEN mode)	

Related Adjustments:
"IRIS IN/OUT adjustment".

10. Flange back adjustment

Purpose: Automatic flange back adjustment of inner focus lens
Adjustment error: Loss of focus when switched between auto focus and manual focus

Subject	Chart for flange back adjustment Placed 2000 ± 5 mm in front of the lens Illuminance: 300 ± 50 lux)
Measurement Point	Check the operations on the TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	9D (OFF FC), 9E (OFF FC), 9F (LENS WIDE), A0 (LENS WIDE), A1 (LENS TELE), A2 (LENS TELE), A9 (Z PHASE)

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**6**	**00**	**01**	**Releasing of protect.**	
2	F	9D	00	Set the initial data, and press the PAUSE button.	
		9E	2C		
		9F	00		
		A0	01		
		A1	E0		
		A2	02		
		A9	08		
3				Check that the center of the flange back adjustment chart coincides with that of the exposure display at both the zoom lens TELE end and the WIDE end.	
4	6	21		Check that the data is 00. (Flange back adjustable display)	
5	6	01	13	Press the PAUSE button.	
6	6	01	15	Press the PAUSE button. (This enables adjustments to be carried out automatically. Adjustments are performed at the zoom lens TELE end first, and then at the WIDE end. The adjustment data is automatically input to page: F, addresses: 9D to A2, A9.)	
7	6	21		Check that the data is 01. (Display indicating that flange back adjustment has completed.)	

Processing after Adjustments:

Order	Procedure
1	Turn on the main power supply. (Out of focus if this is not carried out.)

11. Flange back check

Subject	Siemens star (Placed 2m in front of the lens)
Measurement Point	DDS display of the EVF or TV monitor
Measuring Instrument	
Specified Value	X–Y= ± 0123

Note: Check that the "camera-shaking correction" is turned off.

Checking method:

Order	Page	Address	Data	Procedure	Conditions
1				Place the Siemens star 2m in front of the lens.	
2				Adjust the auto lock switch to "Off".	
3				Adjust the "Brightness" to "Manual", rotate the "Brightness" adjusting dial to + so that the IRIS opens.	
4				Adjust the luminance intensity for the Siemens star so that the optimum image is obtained.	
5				Expose the Siemens star at the TELE end.	
6				Press the "Focus" button, and turn on the auto focus.	
7	6	02	0C	Check that the DDS display is 00 0001. (Focusing check)	Auto focus on
8				Press the "Focus" button and turn off the auto focus.	
9				Expose the Siemens star at the WIDE end.	
10	**6**	**00**	**01**	**Releasing of protect.**	
11	6	02	00		
12	F	02	B8	Press the PAUSE button. (Setting the focus position display mode)	
13				Read the DDS display data and take it as X. (Example) DDS display...63 4500 X=6345	Zoom WIDE end Auto focus off
14				Press the "Focus" button, and turn on the auto focus.	
15	6	02	0C	Check that the DDS display is 00 0001. (Focusing check)	Auto focus on
16	6	02	00	Read the DDS display (focus position display) data and take it as Y. (Example) DDS display...63 5B00 Y=635B	Zoom WIDE end Auto focus on Focusing condition
17				Check that X–Y= ± 0123. (X′–Y′= ± 291 when converted to a decimal numeral)	

Processing after Checking:

Order	Page	Address	Data	Procedure
1	F	02	00	Press the PAUSE button. (Releasing the focus position display mode)

12. Picture frame adjustment

Purpose: A step of adjustment preparation procedure
Adjustment error: Only for adjustment

Subject	Color bar chart standard picture frame
Measurement Point	Video output terminal
Measuring Instrument	Oscilloscope and TV monitor.
Specified Value	A=B, C=D, t=0 ± 0.1 msec.

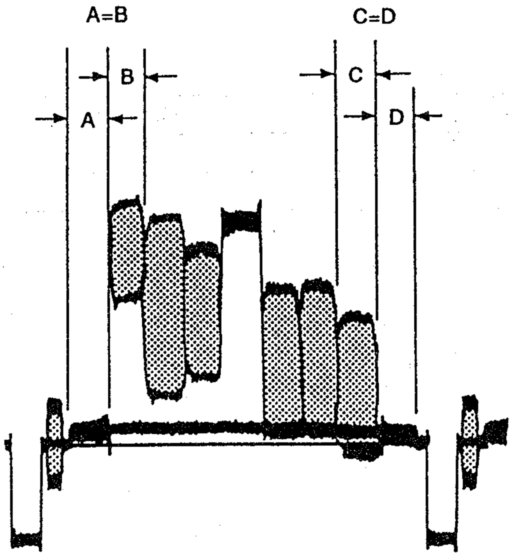
Note: Check that the “camera-shaking correction” is turned off.

Setting method:

Order	Procedure
1	Turn off the auto focus.
2	Adjust the focus using the focus knob.
3	Adjust the direction of the zoom and camera, and set at the specified position.
4	Mark the position of the picture frame on the monitor display, and adjust it to this position if the “color bar chart standard picture frame” or “white pattern standard picture frame” is used in the following adjustments.

Checking with the oscilloscope

1. H cycle



2. V cycle

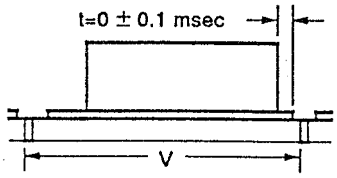


Fig. 7-9.

Checking on the TV monitor (Under scan mode)

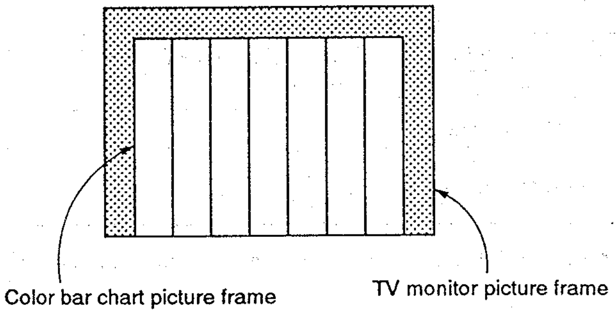


Fig. 7-10.

13. IRIS IN/OUT adjustment

Purpose: Measure the light level and write into EE PROM for indoor/outdoor identification in auto white balance.

Adjustment error: Incorrect white balance (not standard)

Subject	Clear chart pattern standrd picture frame
Measurement Point	DDS display of the EVF or TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	44 (IRIS IN) 45 (IRIS OUT)

Note: Check that the "camera-shaking correction" is turned off.

Adjustment method:

Order	Page	Address	Data	Procedure	Conditions
1	6	02	0E	(Page: A) Setting of LIGHT LEVEL display mode.	
2	6	01	0B	Subtract 15D0 from the data (Page: A). Higher 8 bits of the answer is used as onebyte data.	
3	F	44		Set XI (calculated results of order 2) to data.	
4	F	44		Press the PAUSE button.	
5	6	01	09	Subtract 0DF0 from the data (Page: A). Higher 8 bits of the answer is used as one byte data.	
6	F	45		Set XO (calculated results of order 5) to data.	
7	F	45		Press the PAUSE button.	

Processing after Adjustments:

Order	Page	Address	Data	Procedure	Conditions
1	6	02	00		
2	6	01	00		

Data (Page: A) is DDS displayed on monitor.

14. Max gain adjustment (VC-137P board)

Purpose: Variation of the minimum illumination among units is removed.

Adjustment error: No picture at low illumination (dark)

Subject	Clear chart pattem standrd picture frame
Measurement Point	Pin ⑧ of CN651 (CAM Y)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	73 (AE MIN L)
Specified Value	A=180 ± 10mV

Note: Check that the "camera-shaking correction" is turned off.

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**6**	**00**	**01**	**Releasing of protect.**	
2	6	01	19	Press the PAUSE button. (Max gain adjustment mode)	
3	F	74		Change the data with the PLAY and STOP buttons, and adjust the CAM Y signal level (A) to the specified value.	MAX GAIN adjustment mode
4	F	74		Press the PAUSE button.	

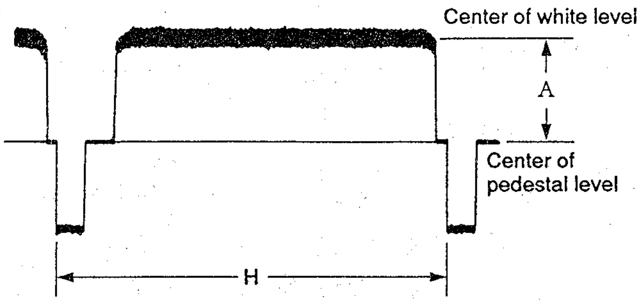


Fig. 7-11.

Processing after Adjustments:

Order	Page	Address	Data	Procedure	Conditions
1	6	01	00	Press the PAUSE button. (Releasing the max gain adjustment mode)	

1. Current consumption adjustment (VF-62P board)

Purpose: Obtain a constant illumination of back light (fluorescent lamp)

Adjustment error: Viewfinder becomes too dark or too bright.

Mode	Record
Signal	Color bar signal whose chroma signal and burst signal are turned off
Measurement Point	Remove L953 and measure +: Pin ① of CN951 –: ⊕ pin of C958
Measuring Instrument	Ammeter
Adjustment Element	RV951
Specified Value	85 ± 5mA

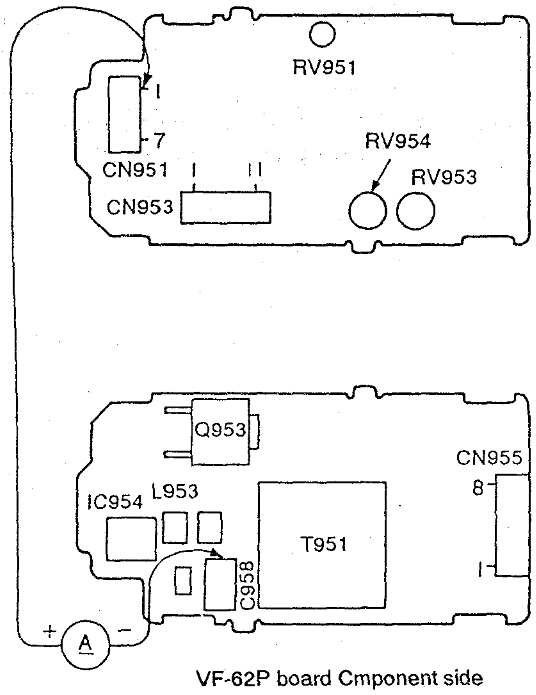
Note 1: Adjust within 30 secs. after the power supply has been turned on.

Note 2: After adjusting, connect L953.

Adjusting method:

Order	Procedure
1	Check that the voltage of Pin ① of CN951 is 6.0 ± 0.1 Vdc.
2	Adjust the current consumption to 85 ± 5mA with RV951.

VF-62P board Conductor side



VF-62P board Cmponent side

Fig. 7-17.

2. Power supply voltage check (VF-61P board)

Mode	Record
Measuring Instrument	Digital voltmeter
+12V check	
Measurement Point	Pin ⑥ of CN801 (12V)
Specified Value	+12.0 ± 0.3 Vdc
+13.5V check	
Measurement Point	Pin ④ of CN801 (13.5V)
Specified Value	+13.5 ± 0.3 Vdc

Checking Method:

Order	Procedure
1	Check tht the UNREG power supply voltage (Pin ① of VF-62P board CN951) of CN951 is 6.0 ± 0.1 Vdc.
2	Check that each power supply voltage satisfies the specified value.

3. VCO adjustment (VF-61P board)

Purpose: Obtain a constant TG frequency.
Adjustment error: Big change may collapse picture.

Mode	Record
Signal	Color bar signal whose chroma signal and burst signal are turned off
Measurement Point	Pin ⑩ of CN801 (PCO)
Measuring Instrument	Oscilloscope (DC range)
Adjustment Element	RV804
Specified Value	A=2.8 ± 0.1V

Adjusting method:

Order	Procedure
1	Check the GND level of the oscilloscope.
2	Adjust the PCO voltage (A) to the specified value with RV905.

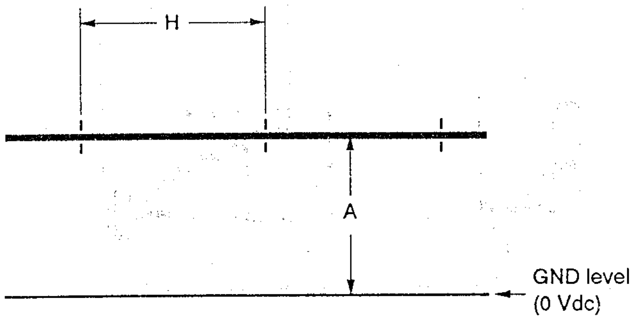
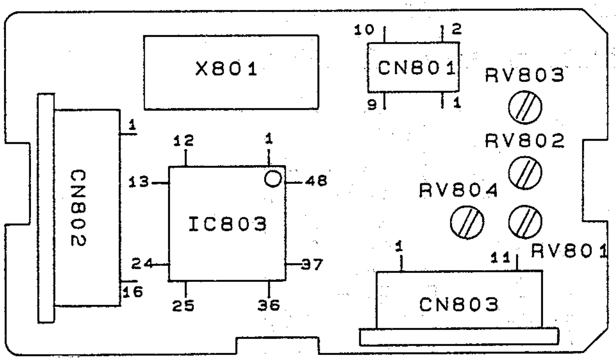

H
A
GND level
(0 Vdc)

Fig. 7-18.


X801
10
2
9
1
CN801
RV803
RV802
RV804
RV801
CN802
1
12
1
13
48
IC803
24
37
16
25
36
1
11
CN803

VF-62P board Cmponent side

Fig. 7-19.

4. LC COM voltage check (VF-61P board)

Purpose: Obtain the correct pairing electrode voltage.
Adjustment error: Poor EVF picture. Flicker sometimes. Apparent vertical streaking

Mode	Record
Signal	Color bar signal whose chroma signal and burst signal are turned off
Measurement Point	See Fig. 7-20
Measuring Instrument	Oscilloscope
Adjustment Address	
Specified Value	A=0.3 ± 0.1V

Connection:

1) Connect Pin ⑤ (SELFR) of CN901 and L901 (EVF 5V) with a jumper wire.

Adjusting method:

Order	Procedure
1	Minimize the flicker on the LCD display with RV904.
2	Remove the jumper wire.

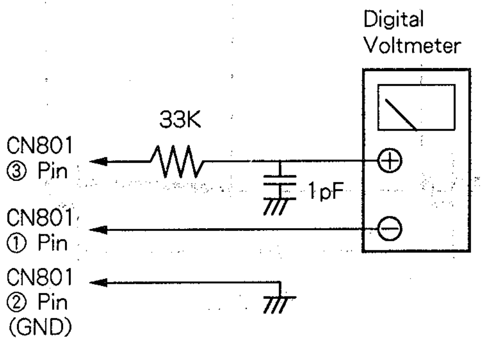

Digital
Voltmeter
33K
CN801
③ Pin
1pF
CN801
① Pin
CN801
② Pin
(GND)

Fig. 7-20.

5. BRIGHT adjustment (VF-62P board)

Purpose: Adjusts EVF picture brightness.

Adjustment error: Picture saturation (white saturation) or black saturation

Mode	Record
Signal	No signal
Measurement Point	Pin ③ of CN801 of VF-62P board (G OUT)
Measuring Instrument	Oscilloscope
Adjustment Element	RV953
Specified Value	A=7.2 ± 0.1V

Adjusting method:

Order	Procedure
1	Adjust the potential difference (A) between the reversed waveform pedestal and the non reversed waveform pedestal to the specified value with RV953.

Related Adjustments:
"SUB BRIGHT R Preset Adjustment", "SUB BRIGHT B Preset Adjustment", "White Balance Adjustment".

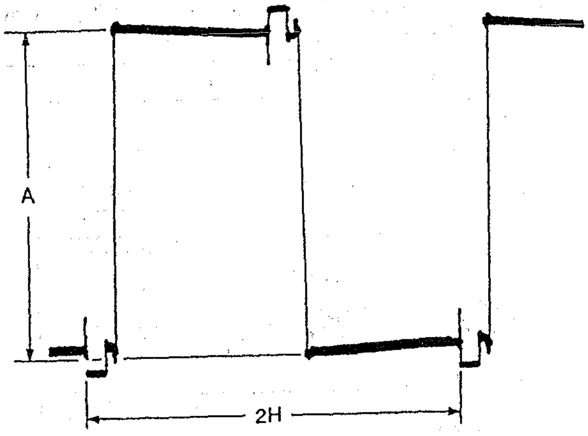
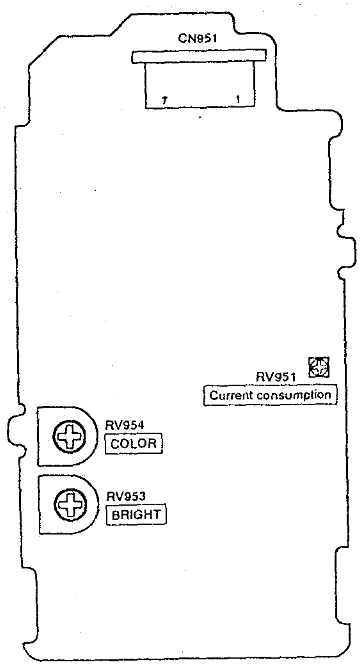


Fig. 7-21.

VF-62P BOARD (CONDUCTOR SIDE)


CN951
7
1
RV951
Current consumption
RV954
COLOR
RV953
BRIGHT

6. CONTRAST adjustment (VF-62P board)

Purpose: Sets EVF picture contrast.

Adjustment error: Loss of contrast. (Whitish) White saturation

Mode	Record
Signal	Color bar signal whose chroma signal and burst signal are turned off
Measurement Point	Pin ③ of CN801 (G OUT)
Measuring Instrument	Oscilloscope
Adjustment Element	RV801
Specified Value	A=2.3 ± 0.1V

Adjusting method:

Order	Procedure
1	Adjust the white 100% level (A) to the specified value with RV801.

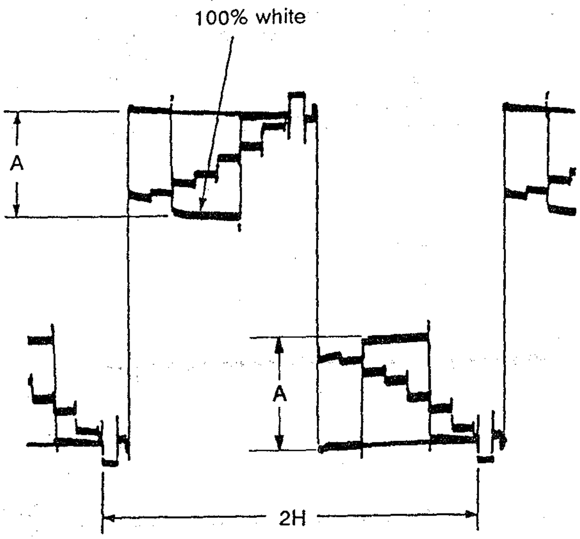
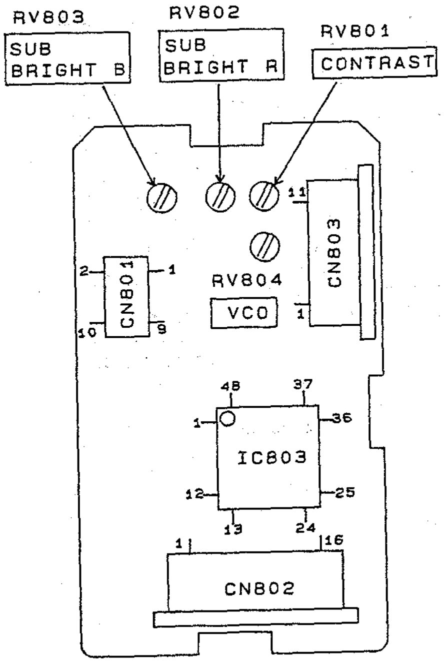


Fig. 7-22.

VF-62P BOARD (CMPONENT SIDE)


RV803
SUB BRIGHT B
RV802
SUB BRIGHT R
RV801
CONTRAST
11
CN803
1
2
1
CN801
10
9
RV804
VCO
48
37
1
36
IC803
12
25
13
24
1
16
CN802

7. White balance adjustment (VF-61P board)

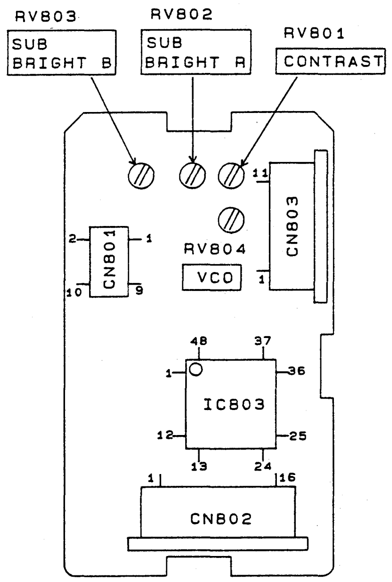
Mode	Record
Signal	Color bar signal whose chroma signal and burst signal are turned off
Measurement Point	Check on LCD display
Measuring Instrument	
Adjustment Element	R: RV802 B: RV803
Specified Value	Picture should not be colored

Note: Turn on the power supply and adjust after more than one minute.

Adjusting method:

Order	Procedure
1	Check that the LCD display is not colored. If it is, adjust RV802 and RV803.

VF-61P BOARD (CMPONENT SIDE)


RV803
SUB BRIGHT B
RV802
SUB BRIGHT R
RV801
CONTRAST
11
CN803
CN801
2
1
10
9
RV804
VCO
1
48
37
1
36
IC803
12
25
13
24
1
16
CN802

Reference value on adjustment
(1) SUB BRIGHT (R OUT)
A=7.0 ± 0.1V
(2) SUB BRIGHT PRESET (B OUT)
A=7.2 ± 0.1V

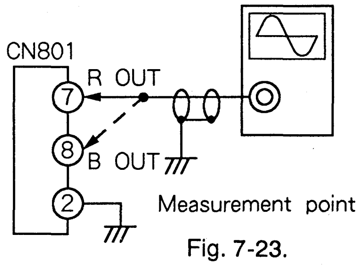

CN801
R OUT
7
8
B OUT
2
Measurement point

Fig. 7-23.

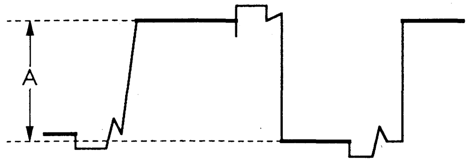


Fig. 7-24.

8. COLOR adjustment (VF-61P board)

Mode	Record
Signal	Color bar signal whose chroma signal and burst signal are turned off
Measurement Point	Check on the LCD diaplay
Measuring Instrument	
Adjustment Address	RV954
Specified Value	Check that there is no defect in the color bar display.

Color Check:

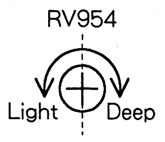
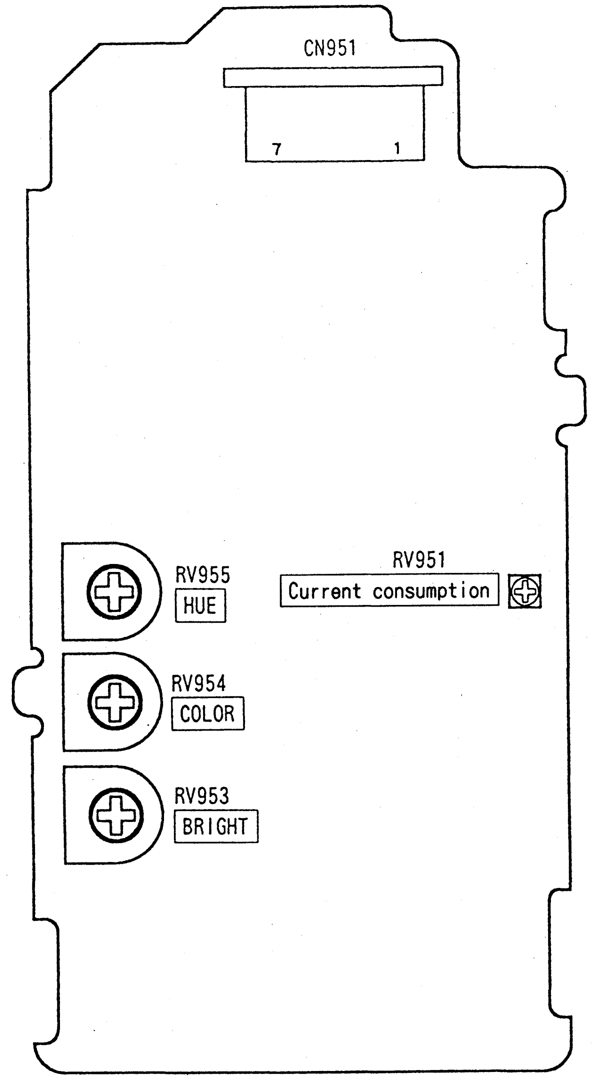

RV954
Light
Deep

Fig. 7-25.

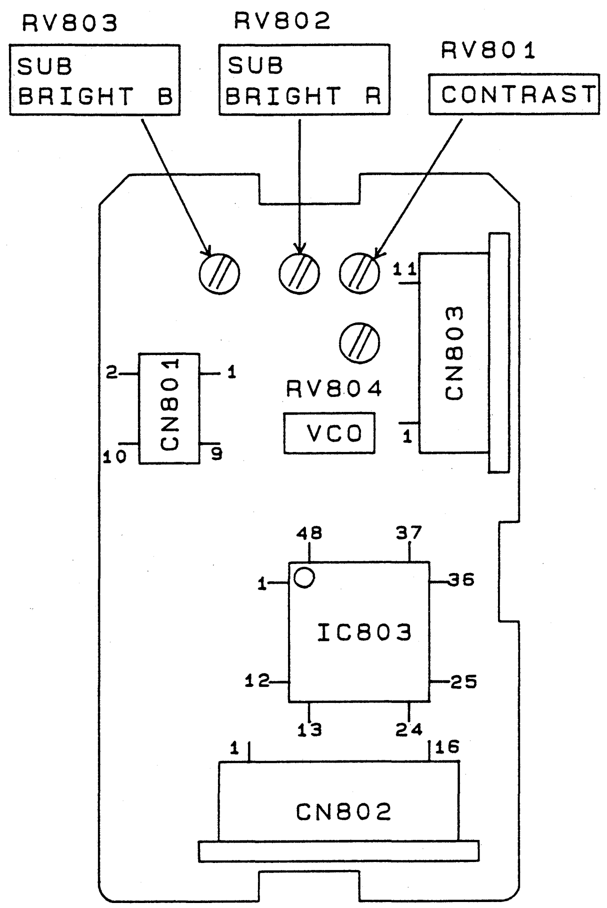
Check that the color shade changes by turning RV954.
After checking, set RV954 to the mechanical center.

7-4. ARRANGEMENT DIAGRAM FOR ADJUSTMENT PARTS

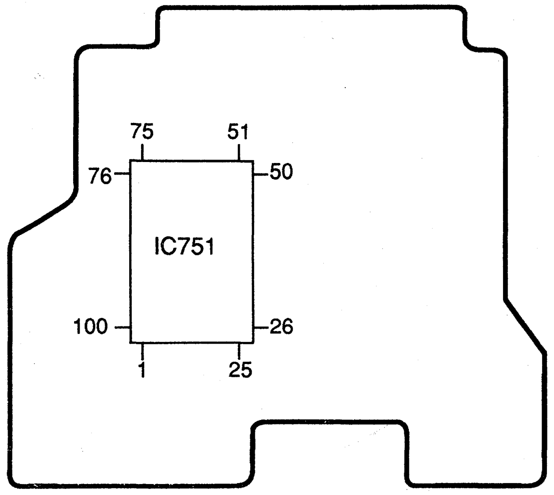
VF-62P BOARD (COMPONENT SIDE)


CN951
7
1
RV955
HUE
RV951
Current consumption
RV954
COLOR
RV953
BRIGHT

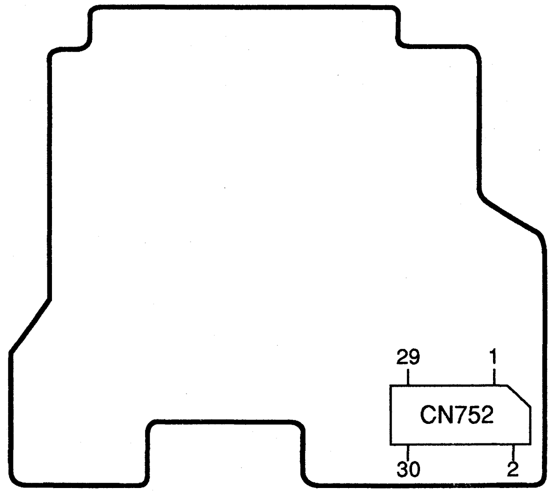
VF-61P BOARD (CONDUCTOR SIDE)


RV803
SUB BRIGHT B
RV802
SUB BRIGHT R
RV801
CONTRAST
11
CN803
CN801
2
1
10
9
RV804
VCO
1
48
37
1
36
IC803
12
25
13
24
1
16
CN802

LD-73P BOARD (CONDUCTOR SIDE)


75
51
76
50
IC751
100
26
1
25

LD-73P BOARD (COMPONENT SIDE)


29
1
CN752
30
2

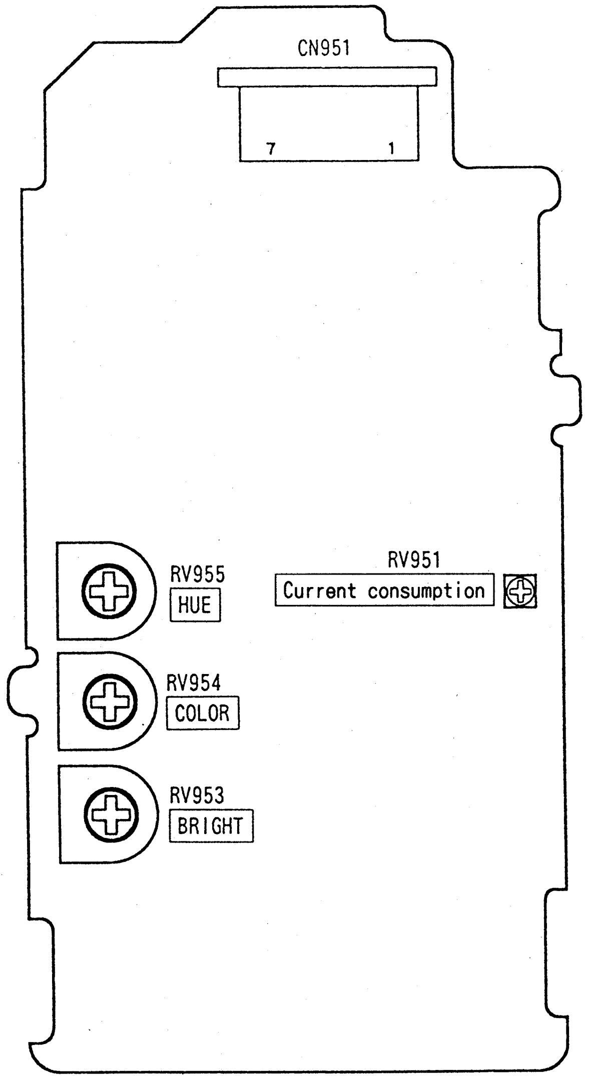
roma signal
off

ct in the

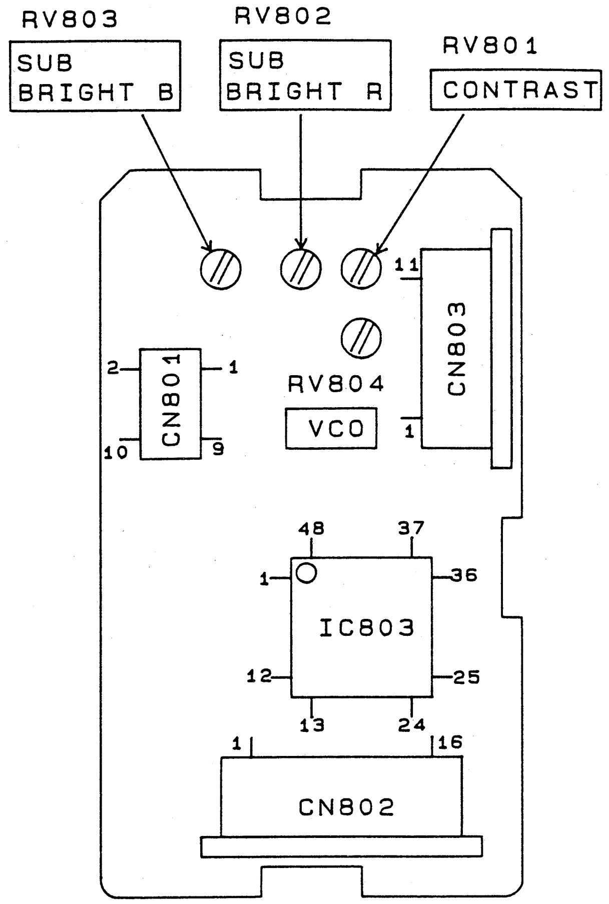
.

7-4. ARRANGEMENT DIAGRAM FOR ADJUSTMENT PARTS

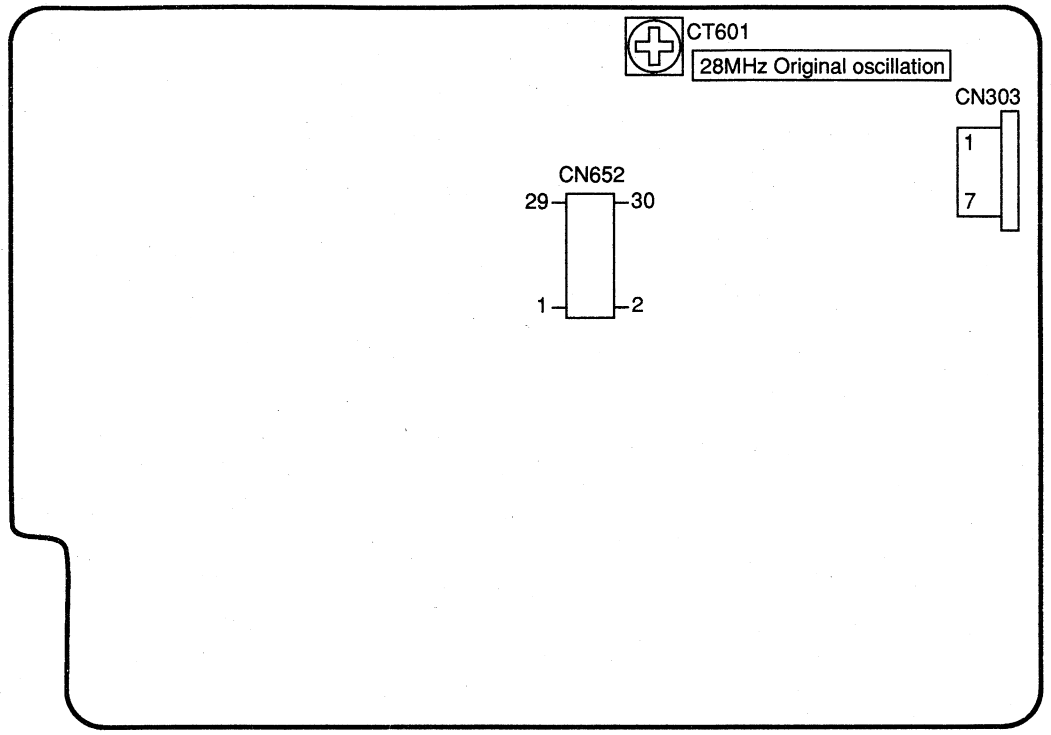
VF-62P BOARD (COMPONENT SIDE)


CN951
7
1
RV955
HUE
RV951
Current consumption
RV954
COLOR
RV953
BRIGHT

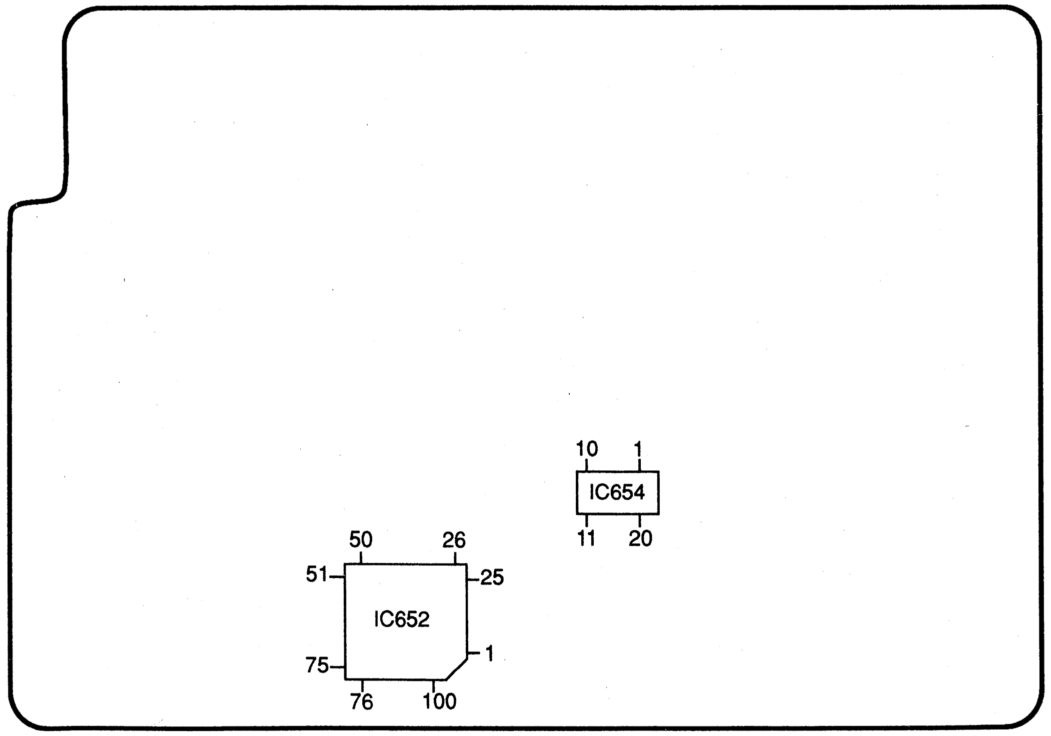
VF-61P BOARD (CONDUCTOR SIDE)


RV803
SUB BRIGHT B
RV802
SUB BRIGHT R
RV801
CONTRAST
RV804
VCO
CN801
2
1
10
9
CN803
11
1
IC803
48
37
1
36
12
25
13
24
CN802
1
16

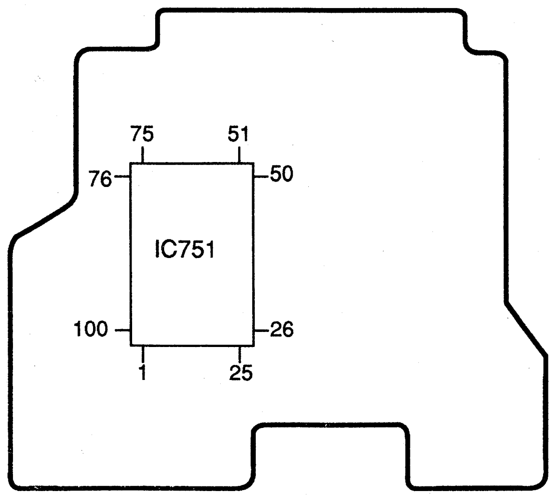
VC-137P BOARD (CONDUCTOR SIDE)


CT601
28MHz Original oscillation
CN303
1
7
CN652
29
30
1
2

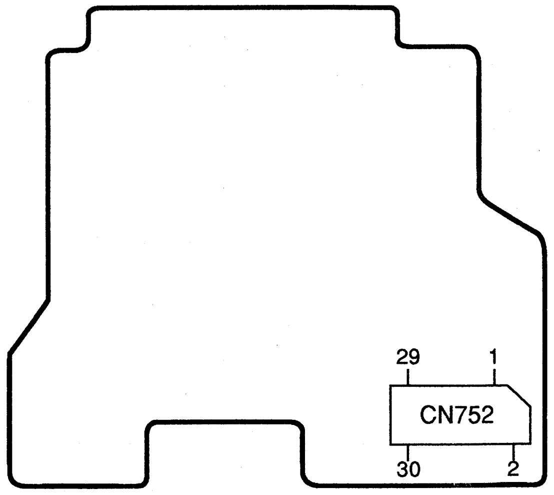
VC-137P BOARD (COMPONENT SIDE)


IC654
10
1
11
20
IC652
50
26
51
25
75
1
76
100

LD-73P BOARD (CONDUCTOR SIDE)


IC751
75
51
76
50
100
26
1
25

LD-73P BOARD (COMPONENT SIDE)


CN752
29
1
30
2

SECTION 8
MECHANISM SECTION ADJUSTMENTS

Mechanism Parts Adjustments

For details on the adjustments and checks of the mechanical section, and replacements of mechanism parts, refer to the separate volume-"8 mm Video Mechanism Section Adjustment Manual II FL Mechanism (Q Mechanism)".

8-1. OPERATING WITH THE CASSETTE COMPARTMENT HOLDER ASSEMBLY REMOVED (Refer to Fig. 8-1.)

1. Loading

1) Refer to ""1. Disassembly", and turn on the power with the cabinet removed (However, leave the cabinet (R) connected so that the adjusting remote commander can be connected.).
   (So that the mechanism deck section can be operated.)
2) Connect the adjusting remote commander, and turn on the HOLD switch.
3) Select page: 1, address: 00, and set data: 01.
   (Releasing the protect)
4) Select page: D, address: 01, and set data: 01.
   (Setting test mode 1)
5) Press the PAUSE button of adjusting remote commander.
6) Turn off the HOLD switch of the adjusting remote commander. (The adjusting remote commander can be disconnected after this.)
7) The unit will be set into the loading mode when the lock plate release arm ❶ is pressed into the direction of the arrow.
   (To set the unit into the recording mode, fix the push switch ❷ with adhesive tape ❸ before performing this operation.)
8) After completing all operations, be sure to perform "5. Processing after operations".

2. Setting the unit into the playback condition

1) Perform steps 1) to 7) of "1. Loading".
2) Press the playback button.

3. Setting the unit into the recording condition

1) Perform steps 1) to 7) of "1. Loading".
2) Press the recording switch.

4. Ejecting

1) Press the eject button.

5. Processing after operations

1) Connect the adjusting remote commander, and turn on the HOLD switch.
2) Select page: 1, address: 00, and set data: 01.
3) Select page: D, address: 01, and set data: 00.
4) Press the PAUSE button of the adjusting remote commander.
5) Remove the power supply from the unit.

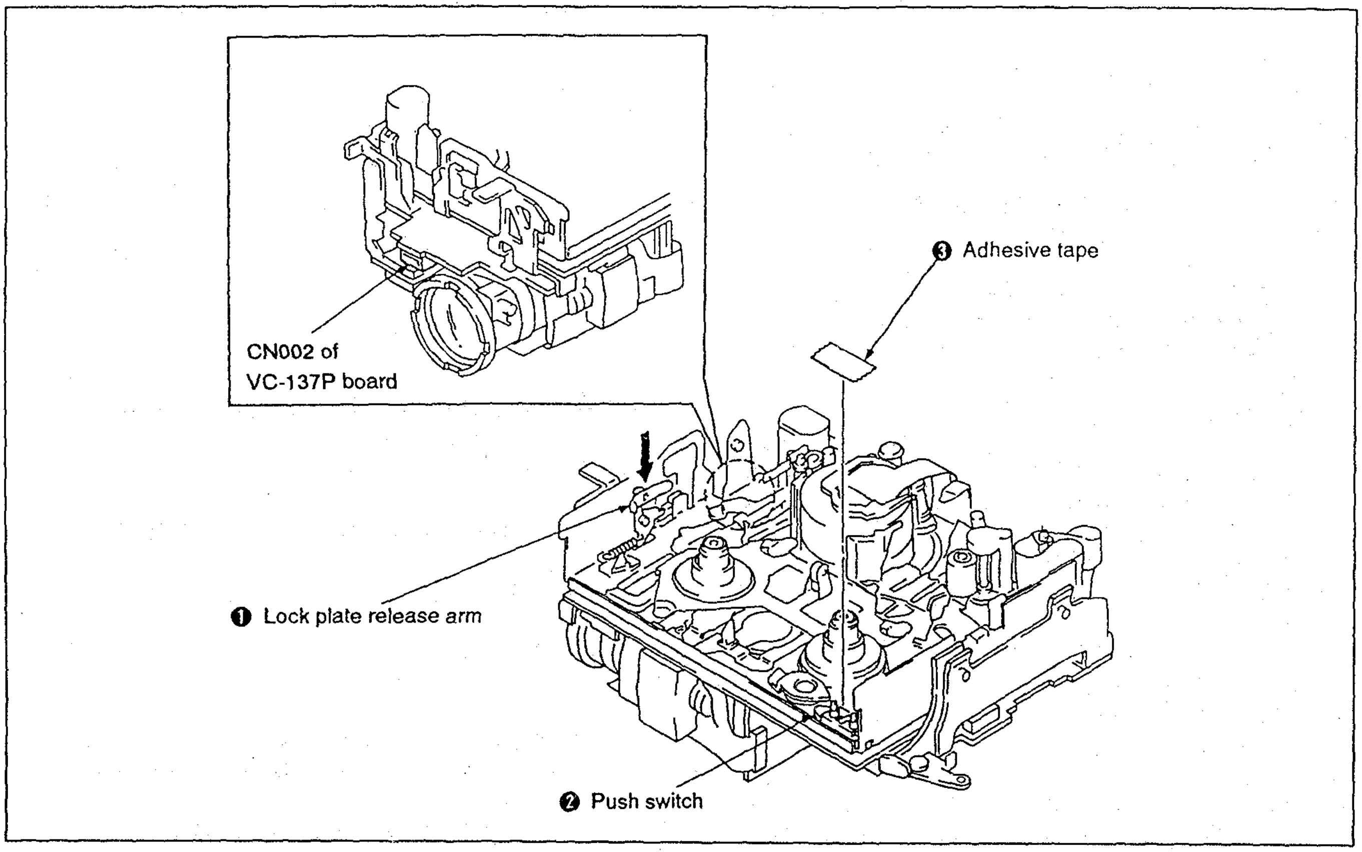

CN002 of
VC-137P board
❸ Adhesive tape
❶ Lock plate release arm
❷ Push switch

Fig. 8-1.

8-2. TAPE PATH ADJUSTMENT

1. Preparations for adjustments
1) Clean the tape path face (tape guide, drum, capstan shaft, pinch roller).
2) Connect the adjusting remote commander to the remote control terminal (JK BLOCK).
3) Turn on the HOLD switch of the adjusting remote commander.
4) Select page: 1, address: 00, and set data: 01.
(Releasing of the protect)
5) Select page: D, address: 01, and set data: 03.
(Setting of track shift mode. The adjusting remote commander can be disconnected if the PAUSE button of the remote commander is pressed. In this case, be sure to perform "8-1-5. Processing after operations" after completing adjustments.)
6) Connect the oscilloscope.
Channel 1-Pin ⑭ of CN002 of VC-137P board
External trigger-Pin ⑨ of CN002 of VC-137P board
(Connect the oscilloscope via the measuring pin tool for the video section (J-6082-140-A).)
7) Playback the alignment tape (WR5-1NP) for tracking.
8) Check that the RF waveform of the oscilloscope is flat at both the entrance and the exit.
If not flat, perform necessary adjustment according to the separate 8 mm Video Mechanical Adjustment II (Q Mechanism).
9) Perform "8-1-5. Processing after operations", after completing adjustments.

CN002 of VC-137P board

1	LANC SIG
2	N.C
3	GND
4	CAP FG
5	REC 1B
6	REC 2B
7	REC 1A
8	REC 2A
9	RF SWP
10	$\overline{\text{1/2 RF SWP}}$
11	PB RF CH1
12	PB RF CH2
13	RF GND
14	PB RF OUT

SECTION 9
VIDEO SECTION ADJUSTMENT

When performing adjustments, refer to the layout diagrams for adjustment related parts beginning from page 300.

9-1. PREPARATIONS BEFORE ADJUSTMENT

The following measuring equipments are used for adjusting the video section.

9-1-1. Equipments Used

1) TV monitor
2) Oscilloscope 2 phenomena, band 30 MHz or wider, with delay mode. (Use a 10:1 probe unless specified otherwise.)
3) Frequency counter
4) Pattern generator with video output terminal
5) Digital voltmeter
6) Audio generator
7) Audio level meter
8) Audio distortion meter
9) Audio attenuator
10) Regulated power supply
11) Alignemt tape
    - For adjusting tracking (WR5-1CP)
      Parts Code: 8-967-995-07
    - For adjusting normal mode video frequency characteristics (WR5-6C)
      Parts Code: 8-967-995-17
    - For adjusting Hi8 mode video frequency characteristics (WR5-7CE)
      Parts Code: 8-967-995-18
    - For checking normal mode operations
      For SP (WR5-5CSP)
      Parts Code: 8-967-995-47
      Or (WR5-4CSP)
      Parts Code: 8-967-995-46
      For LP (WR5-4CL)
      Parts Code: 8-967-995-56
      For checking AFM stereo operations (WR5-9CS)
      Parts Code: 8-967-995-28
    - For checking Hi8 mode operations (ME tape)
      For SP (WR5-8CSE)
      Parts Code: 8-967-995-48
      For LP (WR5-8CLE)
      Parts Code: 8-967-995-57
12) Adjusting remote commander (J-6082-053-A)
13) Video section measuring pin tool
    Parts code: J-6082-140-A
14) JACK BLOCK extension cable (17P, 0.5 mm)
    Parts code: J-6082-194-A
15) AU-154P board extension cable (28P, 0.8 mm)
    Parts code: J-6082-190-A

9-1-2. Precautions upon Adjustment

The EVF (electronic view-finder) section is not required for adjusting the video section.
Remove the following connector when removing the EVF section.

1. CN303 of VC-137P board (Pin 7)

The audio board (AU-154P board) is not required other than in the "REC AFM Level Check" of "Audio System Adjustments" and "Video System Adjustments". Remove the following connectors.

1. CN304 of VC-137P board (Pin 36)

The lens block (including CD-123P board and LD-73P board) is not required other than in "Power Supply System Adjustments". Remove the following connectors and two mounting screws, and remove it from the VC-137P board.

1. CN601 of VC-137P board
2. CN652 of VC-137P board

Additional notes on adjustments
After the completion of the all adjustments, cancel the adjustment mode by either of the following ways.

(1) Unplug the main power supply and remove the lithium battery. (In this case, date, time and menu settings have been set by users are canceled. Perform resetting.)
(2) Return data of the address:00 on page:1 to 00. And when data on page:2 is changed, return the data to the original condition.

9-1-3. How to Set the REC Mode

1. REC key forbidden accept mode cancel
    1. Connect the adjusting remote commander to the REMOTE terminal.
    2. Turn on the power.
    3. Turn on the HOLD switch of the adjusting remote commander.
    4. Select the page: 1 address: 00, and set the data to 01. (Protect mode cancel)
    5. Select the page: D address: 02, and set the data to 81. (REC key forbidden accept mode cancel)
    6. Press PAUSE button on the adjusting remote commander. (Write to the non-volatile memory)

The REC key is accepted through the above procedure. The adjusting remote commander may be removed, hereafter.

Note: After compleating adjustment be sure to perform "4. Procedure after completed adjustment".

2. REC mode setting (1)
   (Method using adjusting remote commander)
    1. Set the HOLD switch of the adjusting remote commander to the OFF (Normal) position.
    2. Press the REC buttons set up REC mode.
3. REC mode setting (2)
    1. Connect Pin ④ of CN354 (REC) on DV-25P board and GND with a jumper wire until the VTR is set to REC mode.

4. Procedure after completed the adjustment
   Be sure to return the mode to REC key forbideden accept mode after adjustment.
   1. Connect the adjusting remoter commander to the REMOTE terminal.
   2. Turn on the power.
   3. Turn on the HOLD switch of the adjusting remote commander.
   4. Select the page: 1 address: 00, and set the data to 01. (Protect mode cancel)
   5. Select the page: D address: 02, and set the data to 80. (Setting of the REC key forbidden accept mode)
   6. Press PAUSE button on the adjusting remote commander. (Write to the non-volatile memory)

9-1-4. Connector for Adjustments (CN002 of VC-137P Board)

Some video section adjustment points are concentrated at CN002 of the VC-137P board. Connect the measuring equipment via the measuring pin tool (J-6082-140-A).

Pin No.	Signal Name	Pin No.	Signal Name
1	LANC SIG	2	N.C
3	GND	4	CAP FG
5	REC 1B	6	REC 2B
7	REC 1A	8	REC 2A
9	RF SWP	10	$\overline{\text{1/2 RF SWP}}$
11	PB RF CH1	12	PB RF CH2
13	RF GND	14	PB RF OUT

Table 9-1.

9-1-5. Connection of Equipments

Connect the measuring equipments as shown in Fig. 9-1 according to the input pin (S VIDEO or VIDEO) specified, adjust the power supply (camera/off/video)switch to "Video", and adjust.

The input pin is specified in the ( ) in the signal column. If there is no specification, although either input pin can be used, the S VIDEO input pin has priority. When adjusting with the video input pin input, pull out the connector from the S VIDEO input pin.

Note: If the VIDEO input is used for adjustments which specify that the S VIDEO input be used, the product specifications of the unit may not be satisfied in some cases. Be sure follow the specifications.
When adjustments are performed with the S VIDEO output terminal VTR as the signal source, the performance of the unit may be affected by the VTR. A pattern generator with a Y/C separation output terminal should be used, if possible.

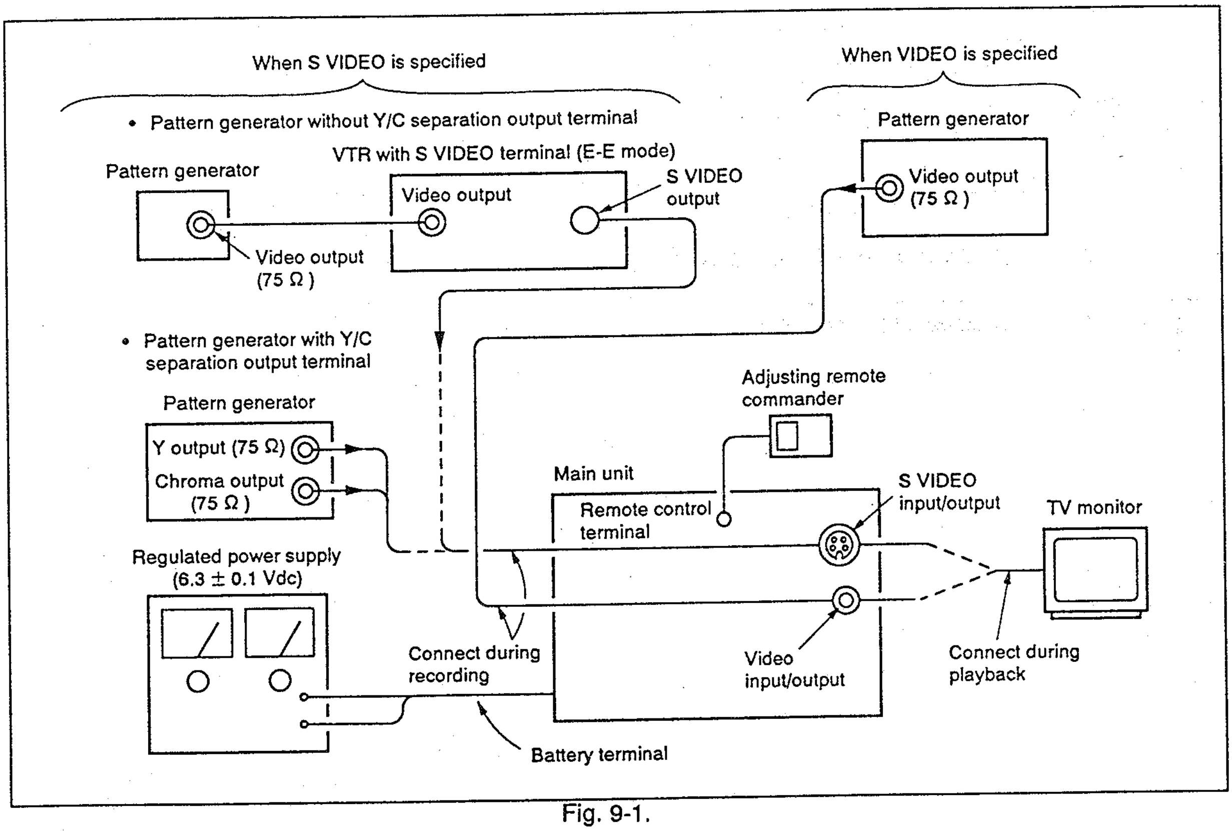

When S VIDEO is specified
• Pattern generator without Y/C separation output terminal
VTR with S VIDEO terminal (E-E mode)
Pattern generator
Video output
S VIDEO output
Video output (75 Ω)
• Pattern generator with Y/C separation output terminal
Pattern generator
Y output (75 Ω)
Chroma output (75 Ω)
Regulated power supply (6.3 ± 0.1 Vdc)
When VIDEO is specified
Pattern generator
Video output (75 Ω)
Adjusting remote commander
Main unit
Remote control terminal
S VIDEO input/output
TV monitor
Connect during recording
Video input/output
Connect during playback
Battery terminal

Fig. 9-1.

9-1-6. Checking the Input Signals

Because the video signal obtained from the pattern generator is used as the adjustment signal for adjusting the VTR section, the video output signal must satisfy the given specifications.

1. S VIDEO Input

Connect the oscilloscope to the Y signal terminal of the S VIDEO input/output terminal, and check that the sync signal of the Y signal is approximately 0.3 Vp-p and that the amplitude of the video section is approximately 0.7 Vp-p. (When a VTR with the S VIDEO output terminal is used, also check that the chroma signal and burst signal have not remained.) Connect the oscilloscope to the chroma signal terminal of the S VIDEO IN terminal, and check that the burst signal amplitude of the chroma signal is approximately 0.3 Vp-p and flat, and that the amplitude ratio of the burst signal to the chroma signal is 0.30:0.66. The Y and chroma signals used in the adjustment are shown in Fig. 9-2.

Note: Be sure to check in the recording mode.

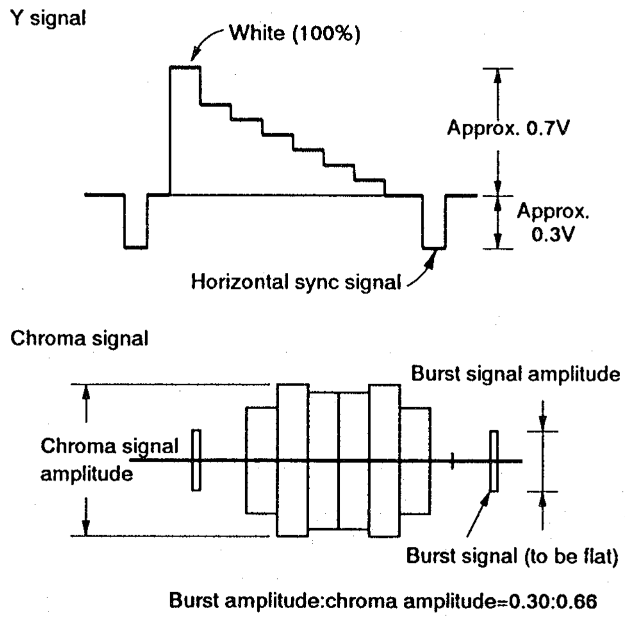

Y signal
White (100%)
Approx. 0.7V
Approx. 0.3V
Horizontal sync signal
Chroma signal
Burst signal amplitude
Chroma signal amplitude
Burst signal (to be flat)
Burst amplitude:chroma amplitude=0.30:0.66

Fig. 9-2. Color bar signal of pattern generator

2. VIDEO Input

Connect the oscilloscope to the video input/output terminal, and check that the sync signal amplitude of the video signal is approximately 0.3V, the amplitude of the video section is approximately 0.7V, the amplitude of the burst signal is approximately 0.3V and flat, and that the level ratio of the burst signal to the "red" signal is 0.30:0.66.

The video signal (color bar) used for adjusting the VTR section is shown in Fig. 9-3.

Note: Be sure to check in the recording mode.

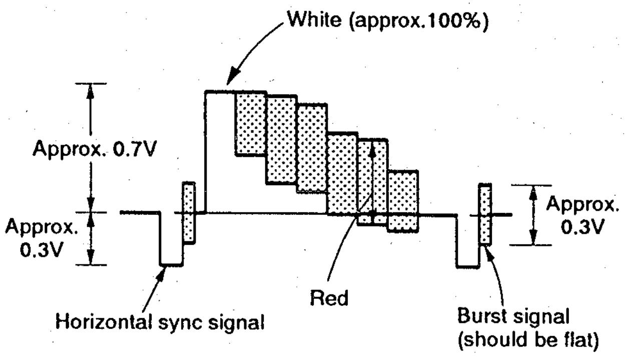

White (approx.100%)
Approx. 0.7V
Approx. 0.3V
Approx. 0.3V
Red
Horizontal sync signal
Burst signal (should be flat)

Fig. 9-3. Color Bar Signal of Pattern Generator

9-1-7. Alignment Tape

The following table lists available alignment tapes. Use the tape specified in the signal column for each adjustment.

If the tape type is not specified for adjustments using tapes to check operations, use any tape for checking operations.

Name	Memory mode	Tape type	Tape speed	Recording Contents		Usage
				Video area	PCM area	
Tracking WR5-1CP	L	MP	SP	CH2: Signal for adjusting 1 MHz tape path		Tape path adjustment Switching position adjustment
Video frequency characteristics WR5-7CE	E	ME	SP	RF sweep 0 to 15 MHz Marker 2, 4.5, 7, 8.5, 10 MHz		Frequency characteristics adjustment
Video frequency characteristics WR5-2C	L	MP	SP	RF sweep Marker 1, 3.58, 5.5, 7 MHz		
Checking operations (SP mode) WR5-5CSP	L	MP	SP	• Video signal Color bar-4 mins. Monoscope-4 mins. • Audio signal (AFM) 400 Hz 60% modulation	• Audio signal (PCM) Monoscope section 20 Hz 20 sec. 400 Hz 20 sec. 14 kHz 20 sec. } Repeated 4 times Color bar section 1 kHz 4 mins.	Checking operations
Checking operations WR5-8CSE	E	ME	SP		• Audio signal (PCM) 400 Hz	
Checking operations WR5-4CL	L	MP	LP	• Video signal Color bar 4 mins. Monoscope 4 mins. • Audio signal (AFM) 400 Hz 60% modulation		
Checking operations WR5-8CLE	E	ME	LP		• Audio signal (PCM) 400 Hz	
AFM stereo Checking operations WR5-9CS	L	MP	SP	• Video signal Color bar 4 mins. Monoscope 4 mins. • Audio signal (AFM) Stereo section (color bar) Lch: 400 Hz, Rch: 1 kHz (L+R: 1.5 MHz±60 kHz DEV L–R: 1.7 MHz±30 kHz DEV) Bilingual section (Monoscope) MAIN: 400 Hz (1.5 MHz ± 60 kHz DEV) SUB: 1 kHz (1.7 MHz ± 30 kHz DEV)	• Audio signal (PCM) 400 Hz 8 mins.	AFM stereo Checking operations

Note: Recording mode

L ·············· Normal (conventional) mode

E ·············· Hi8 (Hi-band) mode

Tape type

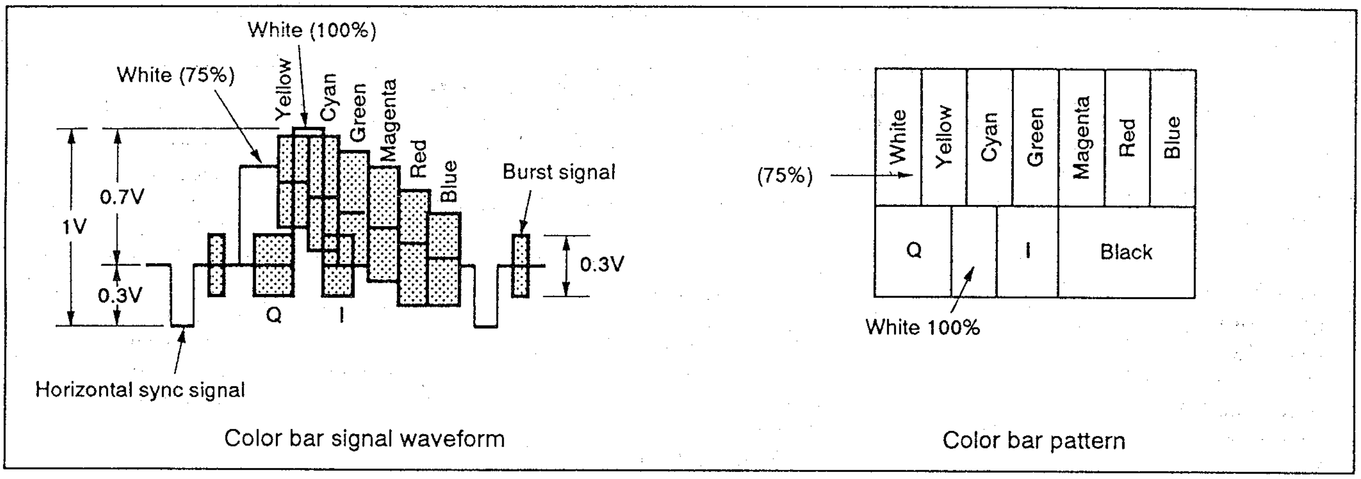
MP············ Metal particle tape

ME············ Metal evaporated tape

Table 9-2.

Fig. 9-4. shows 75% color bar signals recorded on the alignment tape.

Note: Measure using the video input/output terminal (Terminated at 75Ω)


White (100%)
White (75%)
Yellow
Cyan
Green
Magenta
Red
Blue
Burst signal
1V
0.7V
0.3V
0.3V
Q
I
Horizontal sync signal
(75%)
White
Yellow
Cyan
Green
Magenta
Red
Blue
Q
I
Black
White 100%

Color bar signal waveform

Color bar pattern

Fig. 9-4. Color bar signal of alignment tape

9-1-8. Input/Output Level and Impedance

1. E model

Video input	Pin jack Input signal: 1 Vp-p, 75 Ω unbalance, sync negative
Video output	Pin jack Output signal: 1 Vp-p, 75 Ω unbalance, sync negative
S Video input	4-pin mini DIN Luminance signal: 1 Vp-p, 75 Ω unbalance, sync negative Color signal: 0.3 Vp-p, 75 Ω unbalance
S Video output	4-pin mini DIN Luminance signal: 1 Vp-p, 75 Ω unbalance, sync negative Color signal: 0.3 Vp-p, 75 Ω unbalance
Audio input	Pin jack Input level: −7.5 dBs (0dBs=0.775 Vrms) Input unbalance: Above 47 k Ω
Audio output	Pin jack Specified output: −7.5 dBs Output unbalance: Below 2.2 k Ω

2. AEP, UK model

Video output	Pin jack Output signal: 1 Vp-p, 75 Ω unbalanced, sync negative
S video output	4-pin mini DIN Luminance signal: 1 Vp-p, 75 Ω unbalanced, sync negative Color signal: 0.3 Vp-p, 75 Ω unbalanced
Audio output	Pin jack Specified output: −7.5 dBs Output impedance: Below 2.2 k Ω

9-1-9. Recording Mode (Normal/Hi8) Switching

The record mode (normal/Hi8) of this unit switches as shown in the following table. The playback mode (normal/Hi8) switches automatically according to the recording mode of the tape played back.

Hi8 Switch (Menu Display)	Tape Used	Recording Mode
AUTO	ME	Hi8
	Hi8 MP	
	MP	Normal
OFF	ME	Normal
	HI8 MP	
	MP	

Table 9-3.

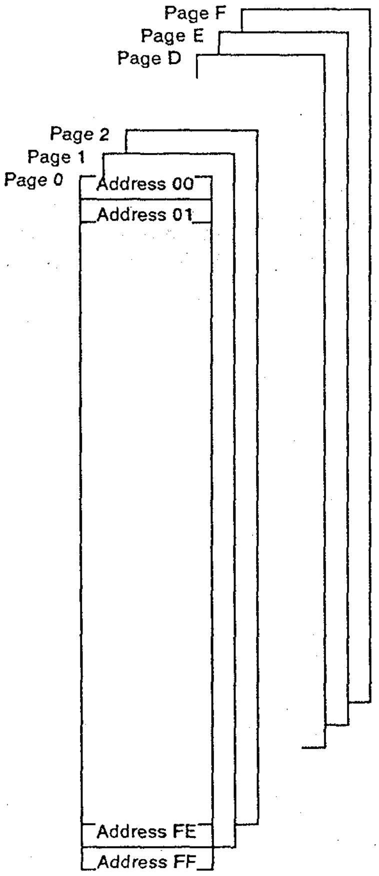
9-1-10. Service Mode

1. Setting the service mode

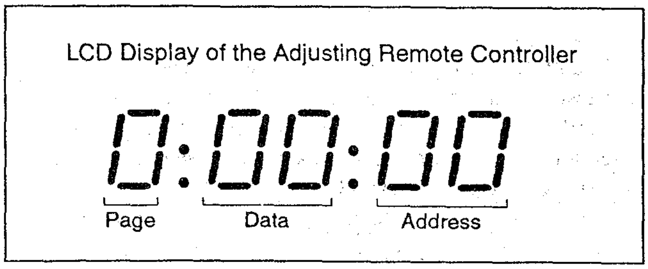
The service mode consists of the adjustment mode which adjusts the EVR and the test mode which shows the condition of the unit.

The unit can be set into the test mode and adjustment mode by connecting the adjusting remote commander (Set the HOLD switch to "HOLD").

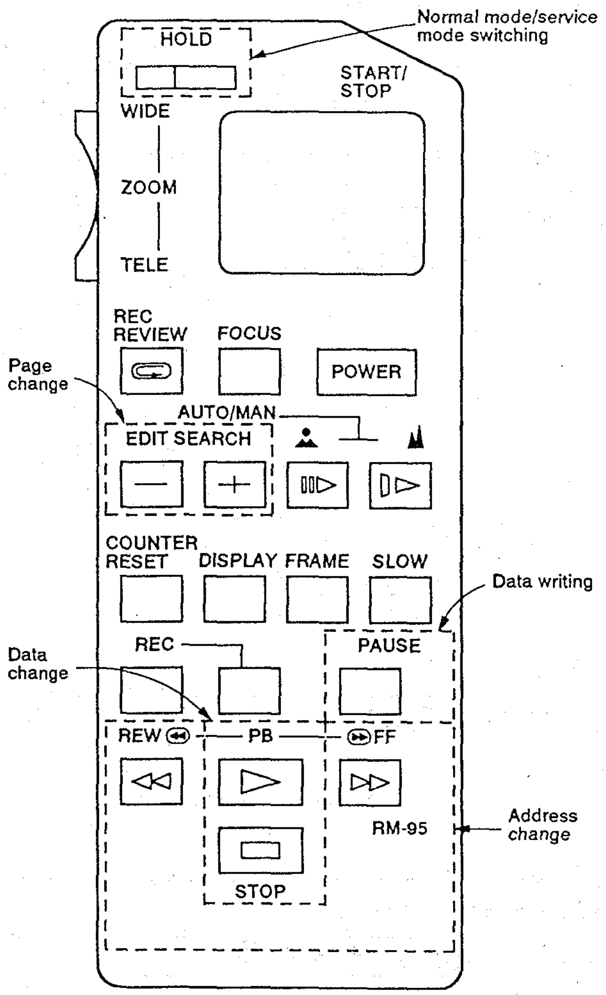
(1) Service LANC memory map


Page F
Page E
Page D
Page 2
Page 1
Page 0
Address 00
Address 01
Address FE
Address FF

Page	Page Layout
0	
1	D page write protect setting/release (Note 1)
2	Mode controller RAM, I/O (Note 1)
3	Mechanism controller RAM, I/O (Note 1)
4	
5	
6	Shared by camera section (Note 1)
7	Camera controller RAM, I/O (Note 1)
8	AF controller RAM, I/O (Note 1)
9	
A	2 bytes data display
B	
C	VTR EEPROM (Note 2)
D	VTR EEPROM (Note 2)
E	Camera EEPROM (Note 3)
F	Camera EEPROM (Note 3)


LCD Display of the Adjusting Remote Controller
0:00:00
Page
Data
Address

Adjusting remote commander RM-95 (J-6082-053-A)


HOLD
Normal mode/service mode switching
START/ STOP
WIDE
ZOOM
TELE
REC REVIEW
FOCUS
POWER
Page change
AUTO/MAN
EDIT SEARCH
COUNTER RESET
DISPLAY
FRAME
SLOW
Data writing
REC
PAUSE
Data change
REW
PB
FF
RM-95
Address change
STOP

Note 1: When the data on this page is changed during setup of adjustment mode or TEST mode using the adjustment remove commander, the new data is not saved in the EEPROM (non-volatile memory). So this page is returned to the original data (normal conditions) by switching off the main power and removing the Lithium battery.

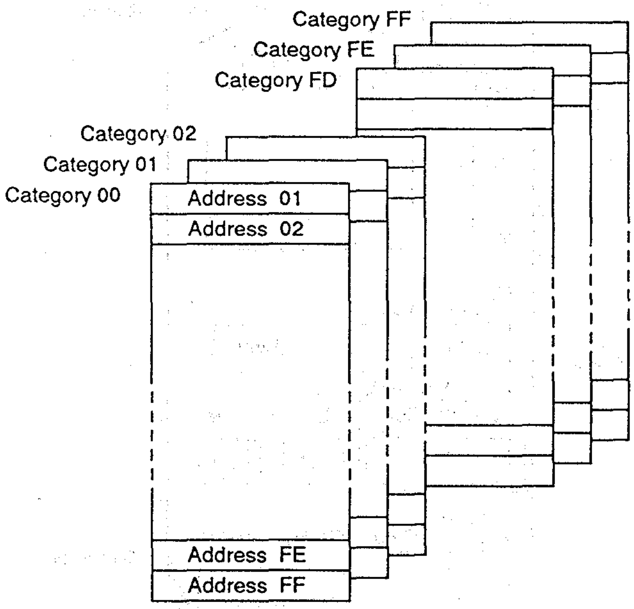
Note 2: The data of this page is written in the EEPROM (IC346 of VC-137P board.)

Note 3: The data of this page is written in the EEPROM (IC651 of VC-137P board.)

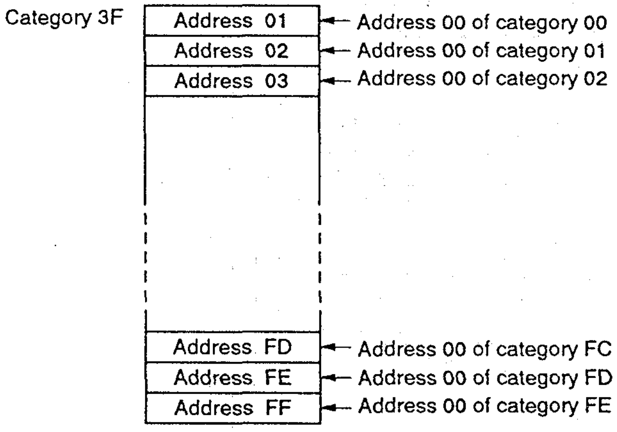
(2) Category codes

This unit uses category codes for pages 2 and 3. The 256 addresses from 00 to FF are insufficient for the mode controller and mechanism controller to access the RAM. Therefore, new category codes have been used to seemingly increase addresses (Addresses 0000 to FFFF).

However, the data of address 00 are actually used as page numbers to form the 256 pages from 00 to FF, as shown in the following figure. This address 00 data are called category codes to discriminate them from the real page numbers. The new pages are called categories.


Category FF
Category FE
Category FD
Category 02
Category 01
Category 00
Address 01
Address 02
Address FE
Address FF

(Supplement) As each category no longer has address 00 as it is, this address cannot be accessed using the adjusting remote commander. Therefore, category 3F is used for accessing address 00.


Category 3F
Address 01
Address 02
Address 03
Address FD
Address FE
Address FF
Address 00 of category 00
Address 00 of category 01
Address 00 of category 02
Address 00 of category FC
Address 00 of category FD
Address 00 of category FE

(Example)

Specification of	Page 2	Category 01	Address 15

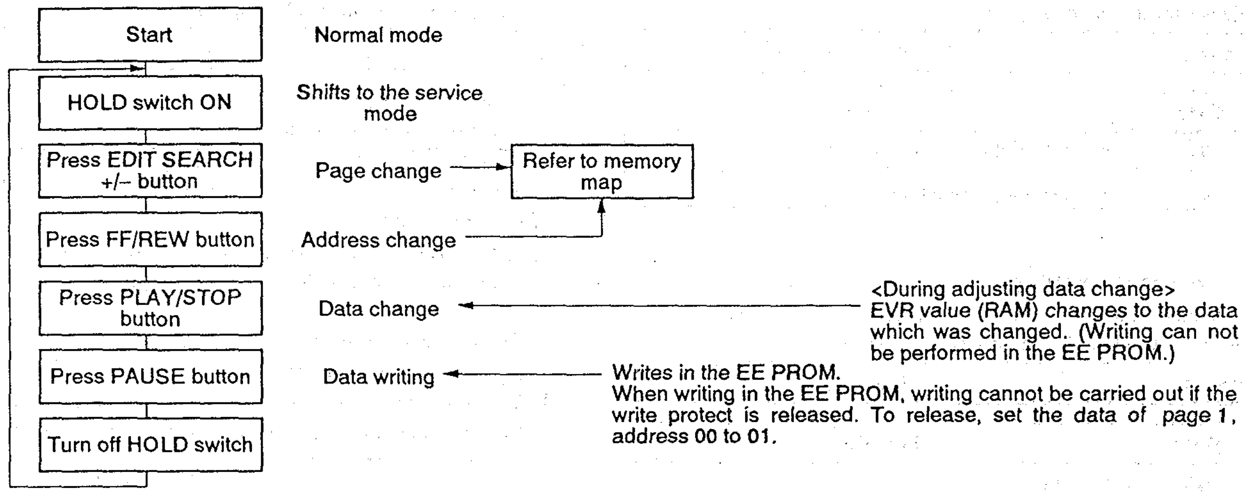
Page 2 is the mode controller

Page 3 is the mechanism controller

The actual category and address are specified by the adjusting remote commander as follows.

Order	Page	Address	Data	Procedure
1	2	00	01	Select category 01 using the data of page 2, address 00. From here onwards, category 01 will be selected at page 2 until the data of page 2, address 01 is rewritten.
2	2	15		As the data of page 2, address 00 is 01, select page 2, address 15 to select page 2, category 01, address 15. (The data of this address is the battery voltage A/D conversion value of the mode controller input.)

[Shifting to the service mode using the adjusting remote commander]


Start
Normal mode
HOLD switch ON
Shifts to the service mode
Press EDIT SEARCH +/– button
Page change
Refer to memory map
Press FF/REW button
Address change
Press PLAY/STOP button
Data change
Press PAUSE button
Data writing
Turn off HOLD switch

<During adjusting data change>
EVR value (RAM) changes to the data which was changed. (Writing can not be performed in the EE PROM.)

Writes in the EE PROM.
When writing in the EE PROM, writing cannot be carried out if the write protect is released. To release, set the data of page 1, address 00 to 01.

Command Name	**Command Function**	**Normal LANC Command**
Page Up	Page+1	Edit Search+
Page Down	Page–1	Edit Search –
Direct Page Set	Sets to the specified page	Event Clear
Address Up	Address+1	Fast Forward
Address Down	Address–1	Rewind
Data Up	Data+1	Play Back
Data Down	Data–1	Stop
Store	Writes data in the EEPROM, RAM	Pause

2. Page D write protect

Release/set the page D write protect.

Page 1	Address 00

Data	Function
00	Normal (Write protect condition)
01	Release the write protect

3. Test mode setting

Set/release each test mode. Release the protect (Page: 1, Address: 00, Data: 01) before setting the data.

Page D	Address 01

Data	Function
00	Normal
01	Test mode 1 Various emergency prohibitions and releases Drum, capstan, loading motor, reel, tape top and end, DEW SP/LP automatic discrimination prohibition, manual switching, 5 minutes pause release prohibition Power off prohibition/release by battery end
02	Test mode 2 Not used
03	Test mode 3 Track shift Performs the track shift playback Rear lock distinction prohibition during PB SP/LP automatic discrimination prohibition, manual switching
04	Test mode 4 Rear lock mode Performs rear lock playback SP/LP automatic discrimination prohibition, manual switching
05	Test mode 5 SP/LP automatic discrimination prohibition, manual switching

※ For page D, the data set will be recorded in the nonvolatile memory by pressing the PAUSE button on the adjusting remote commander. Take note that, in this case, the test mode will not be released even if the main power has been turned off (6.3 Vdc).

※ Be sure to return this address data to 00 after completing adjustments/repairs and press the PAUSE button of the adjusting remote commander.

4. Emergency code

Fault (error) symptoms can be checked.

Page D	Address 06

First emergency code
……First error code generated

Page D	Address 07

Last emergency code
……Last error code generated (This data will be renewed each time an error occurs.)

※ Be sure to rewrite the data of addresses 06 and 07 to 00 after repairs/adjustments.

※ When rewriting the data, be sure to press the PAUSE button of the remote commander after setting the data.

Code	Error Condition
00	No error
01	Loading motor error
02	Reel error during unloading
03	Reel errors at other times
04	Capstan error
05	FG error during drum start up
06	PG error during drum start up
07	FG error during normal drum conditions
08	PG error during normal drum conditions
09	Phase error during normal drum conditions

5. Emergency mode

The operation mode can be checked during faults.

Page D	Address 08

First emergency mode
······The operation mode when the first error is generated

Page D	Address 09

Last emergency mode
······The operation mode when the last error is generated
(This data will be renewed each time an error occurs.)

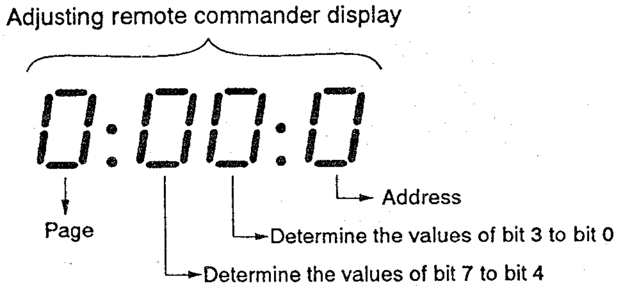
※ Be sure to rewrite the data of addresses 08 and 09 to 00 after repairs/adjustments.

※ When rewriting the data, be sure to press the PAUSE button of the adjusting remote commander after setting the data.

Code	Error Conditions
00	BEFOR INITIALIZE
01	EJECTED
02	NORMAL STOP
03	FF
04	NORMAL REC
06	NORMAL PB
07	PB PAUSE
12	LOADING
14	REC PAUSE
27	1/5 SLOW
31	UNLOADING
46	CUE
56	REVIEW
62	STOP TAPE END
67	FRAME
72	STOP TAPE TOP
83	REWIND
85	REC REVIEW (+)
95	REC REVIEW (–)
A2	EMERGENCY LOADING
A5	EDIT SEARCH (+)
B1	EMERGENCY UNLOADING
B2	STOP EMERGENCY 1
B5	EDIT SEARCH (–)
C2	STOP EMERGENCY 2
E2	STOP NO CASSETTE
F5	EDIT PAUSE

6. Bit value discrimination

Bit values must be discriminated using the display data of the adjusting remote commander for the following items. Use the table below to discriminate if the bit value is "1" or "0".


Adjusting remote commander display
0:00:0
Page
Address
Determine the values of bit 3 to bit 0
Determine the values of bit 7 to bit 4

	Remote controller display	Bit value			
		bit 3 or bit 7	bit 2 or bit 6	bit 1 or bit 5	bit 0 or bit 4
	0	0	0	0	0
	1	0	0	0	1
	2	0	0	1	0
	3	0	0	1	1
	4	0	1	0	0
	5	0	1	0	1
	6	0	1	1	0
	7	0	1	1	1
Ⓐ→	8	1	0	0	0
	9	1	0	0	1
	A(A)	1	0	1	0
	B(b)	1	0	1	1
	C(c)	1	1	0	0
	D(d)	1	1	0	1
Ⓑ→	E(E)	1	1	1	0
	F(F)	1	1	1	1

(Example) If the remote commander display data is "8E", bit values from bit7 to bit4 can be discriminated from column Ⓐ, and those from bit3 to bit0 from column Ⓑ.

7. Mode controller input check

Page 2	Category 00	Address 02

Bit	Input Signal	Input Signal Level
0	BATT IN (IC902 ⑮)	“1”=H, “0”=L
1	PB V (IC902 ⑯)	“1”=PB V input present, “0”=No PB V input
3	LANC PWR ON (IC902 ⑱)	“1”=H, “0”=L
4	LI PREEND (IC902 ⑲)	“1”=H, “0”=L
5		
6		
7		

Using method:

Order	Page	Address	Data	Procedure
1	2	00	00	Specification of category 00
2	2	02		The H/L of each input signal can be discriminated by differentiating the bit values of the display data.

Page 2	Category 00	Address 1C

Bit	Input Signal	Input Signal Level
0	BATT SENCE (IC902 (91))	“1”=L “0”=H
1	$\overline{\text{EXT BATT}}$ (IC902 (92))	
2	BRIGHT A (IC902 (93))	“1”=H “0”=L
3	BRIGHT B (IC902 (94))	
4		
5		
6		
7		

Using method:

Order	Page	Address	Data	Procedure
1	2	00	00	Specification of category 00
2	2	1C		The H/L of each input signal can be discriminated by differentiating the bit values of the display data.

8. Zoom position check

Page 2	Category 01	Address 2B, 2C

Address	Data
2B	Zoom position data (lower)
2C	Zoom position data (upper)

Using method:

Order	Page	Address	Data	Procedure
1	2	00	01	Specification of category 01
2	2	2B		Data (00 to FF) indicates lower data of zoom position
3	2	2C		Data (00 to 02) indicates upper data of zoom position. WIDE end: 00 TELE end: 02

9. LCD, LED check

Page 2	Category 01	Address AE

Data	
00	Normal
10	All segments of LCD light up Tally LED lights up

Using method:

Order	Page	Address	Data	Procedure
1	2	00	00	Specification of category 00
2	2	AE	10	All segments of LCD and tally LED light up.

10. Key input check

Page 2	Category 3F	Address 01

Bit	Key Switch	Condition of Switch
0	Data(+)(CF-3700 S02)	"1"=OFF "0"=ON
1	Time(CF-3700 S03)	
2	Cassette eject(SE-27 SW201)	
3	video power supply(CF-3700 S01)	
4	Auto lock(CF-3700 S07)	
5	Start/Stop(CF-3700 S05)	
6	CC DOWN(Mechanism section)	
7	Camera power supply(CF-3700 S01) LOOK/STANDBY(CF-3700 S04)	

Using method:

Order	Page	Address	Data	Procedure
1	2	00	3F	Specification of category 3F
2	2	01		The on/off each key switch can be discriminated by differentiating the bit values of the display data.

11. Key input check (A/D Port)

Page 2	Category 01	Address 16~1B

Display data / Address	00 to 10	11 to 4C	4D to 7E	7F to B1	B2 to E7	E8 to FF
16 (AD0:IC902(82))	Record (FK-3700 S006/007)	Stop (FK-3700 S001)	Forward (FK-3700 S004)	Playback (FK-3700 S003)	Edit search(−) (FK-3700 S010)	No key input
17 (AD1:IC902(83))	Pause (FK-3700 S005)	Rewind (FK-3700 S002)	Day search (FK-3700 S003)		Edit search(+) (FK-3700 S009)	No key input
18 (AD2:IC902(84))	Fader (CF-3700 S21)	Menu (CF-3700 S22)	Setting (CF-3700 S23)	Item (CF-3700 S24)		No key input
19 (AD3:IC902(85))	Counter Reset (CF-3700 S11)	Program AE (CF-3700 S12)	Brightness lock (CF-3700 S13)	Focus (CF-3700 S14)		No key input
1A (AD4:IC902(86))	STEADY (CF-3700 S06)					No key input

* ⬚ : Emodel

Using method:

Order	Page	Address	Data	Procedure
1	2	00	01	Specification of category 01
2	2	16 to 1B		The key pressed can be discriminated by the display data of each address.

12. Wireless remote commander reception contents check

Page 2	Category 01	Address 11

Display Data	Pressed Key of Wireless Remote Commander
FF	Non
9A	TELE
9B	WIDE
99	Start/Stop
1B	REW
1C	FF
18	Stop
1A	Playback
19	Pause
5A	Data screen
1D	Record
23	Slow

Using method:

Order	Page	Address	Data	Procedure
1	2	00	01	Specification of category 01
2	2	11		The pressed key of the wireless remote commander can be discriminated by the display data.

13. Battery voltage check

Page 2	Category 01	Address 15

Display Data	Battery Voltage ※
FF	Approx. 10 Vdc
F0	Approx. 9.4 Vdc
E0	Approx. 8.8 Vdc
D0	Approx. 8.2 Vdc
C0	Approx. 7.5 Vdc
B0	Approx. 6.9 Vdc
A0	Approx. 6.3 Vdc
90	Approx. 5.6 Vdc
80	Approx. 5.0 Vdc

Using method:

Order	Page	Address	Data	Procedure
1	2	00	01	Specification of category 01
2	2	15		The battery voltage can be discriminated by the display data.

※ Voltage measurement accuracy is approx. ± 10%.

14. Mechanism section switch, etc. check

Page 2	Category 00	Address 86

Bit	Switch, etc.	Condition
0	Hi8 MP	"1"=Hi8 MP tape, "0"=Others
1	PB E/L	"1"=Hi8 mode playback, "0"=Others
2	ME/MP	"1"=ME tape, "0"=MP tape
3	REC PROOF	"1"=Recording prohibited, "0"=Recording possible
4		
5	MODE SW 0	
6	MODE SW 1	
7	MODE SW 2	

Display Data	Mode Switch Position
8*	EJECT
6*	USE
C*	LS
4*	GL
A*	RP(REC, PB, FF, REW, CUE, REVIEW, PAUSE)
2*	READY(STOP)

*: 0 to F

Using method:

Order	Page	Address	Data	Procedure
1	2	00	00	Specification of category 00
2	2	86		The mode switch position can be discriminated by the upper 1 digit of the display data. The conditions of various switches can be discriminated by the bit value of the lower 1 digit.

15. Mechanism controller input/output check

Page 2	Category 00	Address 85

Bit	I/O Signal	Condition
0	PB LP/SP DET	"1"=LP playback, "0"=Others
1	SYNC DET	"1"=VTR SYNC present, "0"=No VTR SYNC
2	REC CLOG	"1"=Clog occurred, "0"=Others
3		
4	JOG	"1"=Variable speed playback, "0"=Others
5	VA PB MODE	"1"=PB mode, "0"=E-E mode
6	AUDIO MUTE	"1"=Mute, "0"=Audio output
7	VIDEO MUTE	"1"=Mute, "0"=Video output

Using method:

Order	Page	Address	Data	Procedure
1	2	00	00	Specification of category 00
2	2	85		The condition of each input/output signal can be discriminated by differentiating the bit value of the display data.

16. Mechanism controller input check

Page 2	Category 00	Address 89

Bit	I/O Signal	Condition
0	$\overline{\text{S IN}}$	"0"=S VIDEO terminal connection condition, "1"=S VIDEO terminal open condition
1	$\overline{\text{DEW DET}}$	"0"=Condensation occurred, "1"=Others
2		
3		
4	$\overline{\text{MIC MONO}}$	"0"=During monaural external microphone use, "1"=Others
5	$\overline{\text{JACK MONO}}$	"0"=Audio input/output terminal (right) connection condition, "1"=Audio input/output terminal (right) open condition
6	PB 1.7M DET	"1"=During AFM stereo/bilingual tape playback, "0"=Others
7		

Using method:

Order	Page	Address	Data	Procedure
1	2	00	00	Specification of category 00
2	2	89		The condition of each input signal can be discriminated by differentiating the bit values of the display data.

17. Mechanism controller A/D port input voltage check

Page 3	Category 02	Address 14

Display Data	A/D Port Input Voltage
00 to FF	Approx. 0 Vdc to approx. 5 Vdc

Using method:

<table>
<tr><th>Order</th><th>Page</th><th>Address</th><th>Data</th><th>Procedure</th></tr>
<tr><td>1</td><td>3</td><td>00</td><td>02</td><td>Specification of category 02</td></tr>
<tr><td>2</td><td>3</td><td>0E</td><td>02</td><td>Permission for A/D conversion operations</td></tr>
<tr><td>3</td><td>3</td><td>13</td><td></td><td>Set the data according to the following table, and specify the A/D port of the mechanism controller.
<table>
<tr><th>Data</th><th>Mechanism Controller Port</th></tr>
<tr><td>00</td><td>(60) pin; AN0, T REEL FG</td></tr>
<tr><td>01</td><td>(59) pin; AN1, S REEL FG</td></tr>
<tr><td>02</td><td>(58) pin; AN2, ATF ERROR</td></tr>
<tr><td>03</td><td>Not used</td></tr>
<tr><td>04</td><td>(56) pin; AN4, $\overline{\text{DEW DET}}$</td></tr>
<tr><td>05</td><td>(55) pin; AN5, TAPE TOP</td></tr>
<tr><td>06</td><td>(54) pin; AN6, TAPE END</td></tr>
</table>
</td></tr>
<tr><td>4</td><td>3</td><td>14</td><td></td><td>The A/D port input voltage can be discriminated according to the display data.</td></tr>
</table>

18. Tape top/end sensor check

Page 3	Category 02	Address 0A

Display Data	Tape Top/End Sensor Condition
00	Tape present (Middle of tape)
01	Tape top
10	Tape end
11	No tape

Tape end sensor condition
Tape top sensor condition

"0"=Non active (Not receiving light)
"1"=Active (Receiving light)

Using method:

Order	Page	Address	Data	Procedure
1	3	00	02	Specification of category 02
2	3	0E	10	Request for tape top/end sampling operations
3	3	0A		The condition of the tape top/end sensor can be discriminated by the display data.

19. Individual operations of the drum, capstan, and loading motor

Page 3	Category 02	Address 11

Display	Operations
00	Normal
02	Drum in normal rotation
04	Drum in reverse rotation
06	Capstan in normal rotation
08	Capstan in reverse rotation
0A	Loading motor in normal rotation
0C	Loading motor in reverse rotation
01	All motors stop
03	
05	
07	
09	
0B	
0D	
0F	

Using method:

Order	Page	Address	Data	Procedure
1	3	00	02	Specification of category 02
2	3	0E	01	Permission for individual operations of motor
3	3	11		The motor can be operated individually by setting the data indicated above.
4				Turn off the main power supply.

20. Page D address list

Note 1: The adjustment data initial value is the data input before performing video section adjustments (Page D) if the Page D data has been erased due to some reason.

Note 2: The data written in the adjustment data memo column are fixed.
After adjusting, check that these data have not been rewritten by mistake.

Address	Name	Function [ ] contains the adjustment voltage output terminal		Adjustment data	
				Initial valu	Memo column
00		Not used		FF	FF
01	Test mode	Test mode		00	00
02	Destination flag	Destination flag	AEP/UK	80	80
			E	A1	A1
03	BATT END	Battery end adjustment		00	
04	SW POSITION (LOW)	SW POSITION adjustment [Lower]		00	
05	SW POSITION (HIGH)	SW POSITION adjustment [Upper]		80	
06	EMERGENCY code (FIRST)	Error codes and modes are recorded in the memory. Rewrite the data of these addresses to 00 after repairs/adjustments.		00	00
07	EMERGENCY code (LAST)			00	00
08	EMERGENCY mode (FIRST)			00	00
09	EMERGENCY mode (LAST)			00	00
0A	SR DATA (L/MP/SP/off)	CXA1207 serial data		67	67
0B	SR DATA (L/MP/SP/off)	CXA1207 serial data		5F	5F
0C	SR DATA (E/ME/SP/off)	CXA1207 serial data		67	67
0D	SR DATA (E/ME/SP/off)	CXA1207 serial data		6F	6F
0E	SR DATA (L/ME/SP/off)	CXA1207 serial data		68	68
0F	SR DATA (L/ME/SP/off)	CXA1207 serial data		5C	5C
10	SR DATA(E/MP/SP/off)	CXA1207 serial data		67	67
11	SR DATA (E/MP/SP/off)	CXA1207 serial data		5F	5F
12	SR DATA (L/on)	CXA1207 serial data		5C	5C
13	SR DATA (L/on)	CXA1207 serial data		65	65
14		Not used		FF	FF
15		Not used		FF	FF
16		Not used		FF	FF
17		Not used		FF	FF
18		Not used		FF	FF
19		Not used		FF	FF
1A		Not used		FF	FF
1B		Not used		FF	FF
1C		Not used		FF	FF
1D		Number of times the head is locked.		00	00
1E		Playback error (First)		00	00
1F		Playback error (Last)		00	00
20	DDS, Eject, Mute	DDS display start year, EJECT permission, etc.		72	72
21		CAM P ON, VTR P ON, etc.		00	00
22 to 27		Not used		FF	FF
28	BATT HYSTERERESIS	Hysteresis after battery is recharged		0C	0C
29		External battery pre-end threshold level		8F	8F
2A	VTR MODE	VTR mode, battery end correction data		01	01

Table 9-4 (1).

Address	Name	Function [ ] contains the adjustment voltage output terminal	Adjustment data	
			Initial valu	Memo column
2B	BATT END	Battery end voltage correction value when using external battery.	03	03
2C	HUNTING THRESHOLD	Hunting prevention threshold level	95	95
2D	BATT REMAIN	2/4→1/4 threshold voltage Battery remained amount display	AC	AC
2E	BATT REMAIN	3/4→2/4 threshold voltage	BD	BD
2F	BATT REMAIN	3/4→4/4 threshold voltage	C8	C8
30	REC C 1A (ME)	ME 1Ach REC C level adjustment (⑫ of IC303)		9B
31	REC C 1A (MP)	MP 1Ach REC C level adjustment (⑫ of IC303)		9E
32	REC C 1B (ME)	ME 1Bch REC C level adjustment (⑬ of IC303)		9E
33	REC C 1B (MP)	MP 1Bch REC C level adjustment (⑬ of IC303)		9E
34	REC C 2A (ME)	ME 2Ach REC C level adjustment (⑭ of IC303)		99
35	REC C 2A (MP)	MP 2Ach REC C level adjustment (⑭ of IC303)		9C
36	REC C 2B (ME)	ME 2Bch REC C level adjustment (⑮ of IC303)		99
37	REC C 2B (MP)	MP 2Bch REC C level adjustment (⑮ of IC303)		9A
38	CAP FG OFFSET	Capstan FG bias adjusment (⑰ of IC303)	80	
39		Not used	FF	FF
3A		Not used	FF	FF
3B		Not used	FF	FF
3C	MT F0 (E)	Hi8 playback RF equalizer f0 frequency adjustment (㉒ of IC303)	67	67
3D	MT F0 (L)	Normal playback RF equalizer f0 frequency adjustment (㉒ of IC303)	67	67
3E	MT 2A (E)	Hi8 2Ach frequency characteristics adjustment (⑳ of IC303)	80	8A
3F	MT 2A (L)	Normal 2Ach frequency characteristics adjustment (⑳ of IC303)	80	8A
40	MT 2B (E)	Hi8 2Bch frequency characteristics adjustment (㉑ of IC303)	80	8A
41	MT 2B (L)	Normal 2Bch frequency characteristics adjustment (㉑ of IC303)	80	8A
42	MT 1A (E)	Hi8 1Ach frequency characteristics adjustment (⑱ of IC303)	80	82
43	MT 1A (L)	Normal 1Ach frequency characteristics adjustment (⑱ of IC303)	80	82
44	MT 1B (E)	Hi8 1Bch frequency characteristics adjustment (⑲ of IC303)	80	80
45	MT 1B (L)	Normal 1Bch frequency characteristics adjustment (⑲ of IC303)	80	80
46		Not used	FF	FF
47		Not used	FF	FF
48	RF CONT (E)	ME RF CONT (⑪ of IC303)	80	80
49	RF CONT (L)	MP RF CONT (⑪ of IC303)	80	80
4A	SYNC AGC	SYNC AGC adjustment (㊳ of IC303)		67
4B		Not used	FF	FF
4C	COMB	Chroma comb type filter adjustment (㊴ of IC303)		A1
4D	IR	IR adjustment (㊷ of IC303)		AF
4E	CAR.(-E)	Hi8 Y-FM carrier frequency adjustment (㊸ of IC303)		B3
4F	CAR.(-L)	Normal Y-FM carrier frequency adjustment (㊸ of IC303)		A9
50	DEV.(-E)	Hi8 Y-FM deviation adjustment (㊹ of IC303)		9E
51	DEV.(-L)	Normal Y-FM deviation adjustment (㊹ of IC303)		96
52	REC Y (E/ME)	Hi8 ME REC Y level adjustment (⑯ of IC303)		8E
53	REC Y (E/MP)	Hi8 MP REC Y level adjustment (⑯ of IC303)		87

Table 9-4 (2).

Address	Name	Function [ ] contains the adjustment voltage output terminal	Adjustment data	
			Initial valu	Memo column
54	REC Y (L/ME)	Normal ME REC Y level adjusment (⑯ of IC303)		8A
55	REC Y (L/MP)	Normal MP REC Y level adjusment (⑯ of IC303)		7F
56	PB I	PB mode bias level	94	94
57	PB Y (PB)	PB mode REC Y level (㊼ of IC303)	00	00
58	PB Y (Rec/E)	Hi8 Rec Y level adjusment (㊼ of IC303)		AB
59	PB Y (Rec/L)	Normal Rec Y level adjustment (㊼ of IC303)		A9
5A	EMPH (Rec)	Rec emphasis input level adjustment (㊽ of IC303)		99
5B	EMPH (PB)	PB emphasis input level adjustment (㊽ of IC303)		A1
5C		Not used	FF	FF
5D		Not used	FF	FF
5E		Not used	FF	FF
5F		Not used	FF	FF
60		Not used	FF	FF
61		Not used	FF	FF
62		Not used	FF	FF
63		Not used	FF	FF
64	PILOT CONTPB ME	Not used	90	90
65	PILOT CONTPB MP	Not used	80	80
66	YD ADJ	YD level (㊵ of IC303)	B1	B1
67	PAL JOG	Not used (PAL TOG adjustment (㊶ of IC303))	64	64
68	D.CLIP (E/ME/SP)	Hi8 ME SP DARK CLIP (㊺ of IC303)	65	65
69	D.CLIP (E/MP/SP)	Hi8 MP SP DARK CLIP (㊺ of IC303)	65	65
6A	D.CLIP (L/ME/SP)	Normal ME SP DARK CLIP (㊺ of IC303)	53	53
6B	D.CLIP (L/MP/SP)	Normal MP SP DARK CLIP (㊺ of IC303)	53	53
6C	D.CLIP (E/ME/PAL LP)	Hi8 ME LP DARK CLIP (㊺ of IC303)	7C	7C
6D	D.CLIP (E/MP/PAL LP)	Hi8 MP LP DARK CLIP (㊺ of IC303)	AE	AE
6E	D.CLIP (L/ME/PAL LP)	Normal ME LP DARK CLIP (㊺ of IC303)	53	53
6F	D.CLIP (L/MP/PAL LP)	Normal MP LP DARK CLIP (㊺ of IC303)	53	53
70	W.CLIP (E/ME/SP)	Hi8 ME SP WHITE CLIP (㊻ of IC303)	66	66
71	W.CLIP (E/MP/SP)	Hi8 MP SP WHITE CLIP (㊻ of IC303)	4D	4D
72	W.CLIP (L/ME/SP)	Normal ME SP WHITE CLIP (㊻ of IC303)	B1	B1
73	W.CLIP (L/MP/SP)	Normal MP SP WHITE CLIP (㊻ of IC303)	B1	B1
74	W.CLIP (E/ME/PAL LP)	Hi8 ME LP WHITE CLIP (㊻ of IC303)	4D	4D
75	W.CLIP (E/MP/PAL LP)	Hi8 MP LP WHITE CLIP (㊻ of IC303)	20	20
76	W.CLIP (L/ME/PAL LP)	Normal ME LP WHITE CLIP (㊻ of IC303)	B1	B1
77	W.CLIP (L/MP/PAL LP)	Normal MP LP WHITE CLIP (㊻ of IC303)	B1	B1
78	REC MATRIX	REC matrix adjusment (㉘ of IC303)		A0
79		PB matrix adjusment (㉘ of IC303)		00
7A		1.5 MHz IR adjustment (㉖ of IC303)		00
7B	1.5 DEV	1.5 NHz deviation adjustment (㉗ of IC303)		A8
7C		1.7 MHz IR adjustment (㉔ of IC303)		00
7D	1.7 DEV	1.7 MHz deviation adjustment (㉕ of IC303)		A7
7E		Not used	FF	FF
7F	ID VCO		–	–

Table 9-4 (3).

Address	Name	Function [ ] contains the adjustment voltage output terminal	Adjustment data	
			Initial valu	Memo column
80 to 83		Not used	FF	FF
84	ME CONT (E/ME)	Hi8 ME REC C level (㉓ of IC303)	FF	FF
85	ME CONT (E/MP) SP	Hi8 MP REC C level (㉓ of IC303)		B5
86	ME CONT (L/ME)	Normal ME REC C level (㉓ of IC303)	FF	FF
87	ME CONT (L/MP) SP	Normal MP REC C level (㉓ of IC303)		BB
88		Not used	FF	FF
89	ME CONT (E/MP) LP		FF	B5
8A		Not used	FF	FF
8B	ME CONT (L/MP) LP		FF	
8C	REC C RV (REC)	REC C RF level adjustment (⑩ of IC303)		B8
8D	REC C RV (PB)	PB mode REC C RF level adjustment (⑩ of IC303)	00	00
8E		Not used	FF	FF
8F		Special use	00	00
90 to DF		Special use	FF	
E0	NEXT DEF BIT	CCD imager correction pattern (for backup)		
E1	CCD DEFECT 0	CCD imager correction data (for backup) ※ Refer to "CCD Imager Correction Data Writing" of Camera Section Adjustments.		
E2	CCD DEFECT 1			
E3	CCD DEFECT 2			
E4	CCD DEFECT 3			
E5	CCD DEFECT 4			
E6	CCD DEFECT 5			
E7	CCD DEFECT 6			
E8	CCD DEFECT 7			
E9	CCD DEFECT 8			
EA	CCD DEFECT 9			
EB	CCD DEFECT 10			
EC	CCD DEFECT 11			
ED	CCD DEFECT 12			
EE	CCD DEFECT 13			
EF	CCD DEFECT 14			
F0 to FF		Special use. Not related to operation of the unit.	FF	FF

Table 9-4 (4).

9-2. ADJUSTING POINTS WHEN REPLACING MAIN PARTS

1. When replacing drum

"Switching Position Adjustment" of "Servo System Adjustments"

"Playback Frequency Characteristics Adjustment" of "Video System Adjustments"

2. When replacing capstan motor

"CAP FG Duty Adjustment" of "Servo System Adjustments"

9-3. POWER SUPPLY SYSTEM ADJUSTMENTS

1. Oscillator frequency check (DV-25P board)

Mode	Camera record
Subject	Arbitrary
Measurement Point	Q355 collector
Measuring Instrument	Frequency counter
Specified Value	460 ± 50 kHz

2. Power supply voltage check (DV-25P board)

Mode	Camera record
Subject	Arbitrary
Measuring Instrument	Digital voltmeter
EVF5V check	
Measurement Point	Pin ⑯ of W352
Specified Value	4.92 ± 0.15Vdc
SS5V check	
Measurement Point	Pin ① of W352
Specified Value	4.71 ± 0.15Vdc
D5V check	
Measurement Point	Pin ㉟, ㊱ of W352
Specified Value	4.90 ± 0.15Vdc
D4V check	
Measurement Point	Pin ㉞ of W352
Specified Value	3.95 ± 0.15Vdc
VIDEO 5V check	
Measurement Point	Pin ⑱, ⑲ of W352
Specified Value	4.69 ± 0.15Vdc
AU5V check	
Measurement Point	Pin ⑰ of W352
Specified Value	4.72 ± 0.15Vdc
CAM5V check	
Measurement Point	Pin ㊲ of W352
Specified Value	4.85 ± 0.15Vdc
15V check	
Measurement Point	Pin ㉜ of W352
Specified Value	15.0 ± 0.4Vdc
− 8.5V check	
Measurement Point	Pin ㉝ of W352
Specified Value	− 8.5 ± 0.5Vdc
MOTOR 5V check	
Measurement Point	Pin ③ of W352
Specified Value	4.90 ± 0.15Vdc

9-4. SYSTEM CONTROL SYSTEM ADJUSTMENTS

1. Page D Initial value Input

If the page D data is erased due to some cause, input the page D initial value before adjusting. For details on the initial value, refer to "Page D Address List" in "9-1-9. Service Mode". Input the CCD correction data (Page F, addresses 1F to 2E) to addresses E0 to EF as backup data. For details, refer to "CCD correction data writing" of "Camera Section Adjustments".

Mode	Stop
Signal	Arbitrary
Adjustment Page	D
Adjustment Address	00 to 8F, E0 to EF

Inputting method:

Order	Page	Address	Data	Procedure	Conditions
1	**1**	**00**	**01**	**Releasing of protect.**	
2	D	00~8F		Input the data (initial value) according to the "Page D Address List". After setting each data, be sure to press the PAUSE button.	
3	D	E0 E1 E2 ⋮ EF		Set the data of page F address 1F, and press the PAUSE button. Set the data of page F address 20, and press the PAUSE button. Set the data of page F address 21, and press the PAUSE button. ⋮ Set the data of page F address 2E, and press the PAUSE button.	

2. Battery end adjustment

Purpose: Sets the battery down voltage.

Adjustment error: Short operating hours of a battery. Picture distortion

Mode	Camera record, auto focus off
Subject	Arbitrary
Measurement Point	LCD display of the adjusting remote commander
Measuring Instrument	
Adjustment Page	D
Adjustment Address	03 (BATT END)

Connection:

1) Connect the regulated power supply and the digital voltmeter as shown in Fig. 9-5.

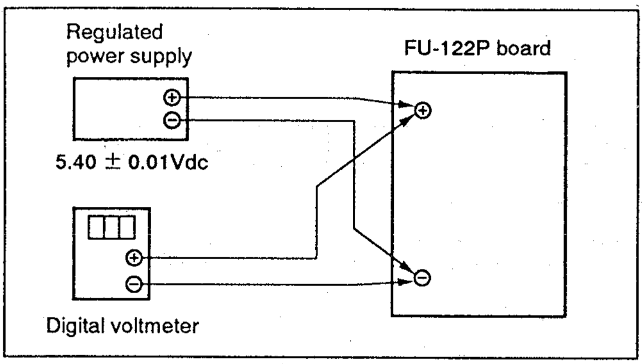


Fig. 9-5.

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1				Adjust the output voltage of the regulated power supply so that the digital voltmeter display becomes 6.3 ± 0.1 Vdc.	
2				Set the camera recording mode. The auto focus turns off.	
3	**1**	**00**	**01**	**Releasing of protect.**	
4				Adjust the output volgate of the regulated power supply so that the digital voltmeter display becomes 5.40 ± 0.01Vdc.	
5	2	00	01	Specification of page 2, category 1.	
6	2	15		Read the adjusting remote commander display data and take it as D03.	Camera recording mode
7	D	03		Set D03, and press the PAUSE button.	
8				Turn off the power supply.	

9-5. SERVO SYSTEM ADJUSTMENTS

1. Switching position adjustment

Purpose: Removes vertical mechanical error of head assembling.
Adjustment error: Skew picture

Mode	Playback
Signal	Alignment tape: For adjusting tracking (WR5-1CP)
Measurement Point	CH1: Pin ⑨ of CN002 (RF SWP) CH2: Pin ⑫ of CN002 (PB RF CH2)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	04 (SW POSITION (LOW)) 05 (SW POSITION (HIGH))
Specified Value	$t_1=0 \pm 5$ μsec.

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**1**	**00**	**01**	**Releasing of protect.**	
2	D	05	80	Initial setting.	
3	D	05		Change the data with the PLAY and STOP buttons, and minimize t_1.	Playback mode
4	D	05		Press the PAUSE button.	
5	D	04		Change the data with the PLAY and STOP buttons, and minimize t_1.	Playback mode
6	D	04		Press the PAUSE button.	
7				Check that t_1 satisfies the specified value. If not, repeat steps 3 to 7 in order.	

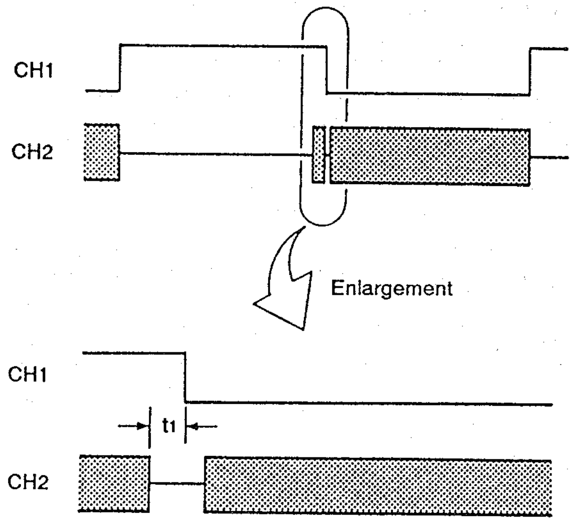
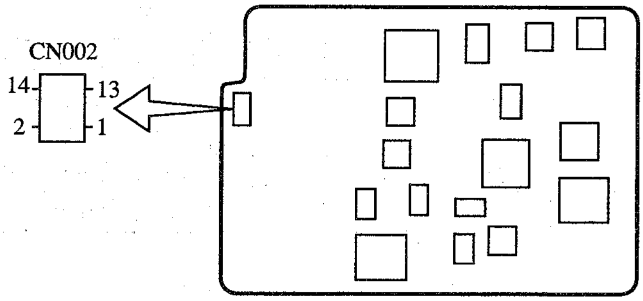


Fig. 9-6.



VC-137P Board Component side side B

Fig. 9-7.

2. CAP FG duty adjustment (VC-137P board)

Purpose: Improvement of servo characteristics (FL type mechanism only)

Adjustment error: Increased jitter

Mode	Record
Signal	Color bar
Measurement Point	Pin ④ of CN002 (CAP FG)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	38 (CAP FG BIAS)
Specified Value	Duty=50 ± 1%

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**1**	**00**	**01**	**Releasing of protect.**	
2	D	38	80	Initial setting	
3	D	38		Press the PLAY and STOP buttons, and adjust the duty of the CFG waveform to the specified value.	Recording mode
4	D	38		Press the PAUSE button.	

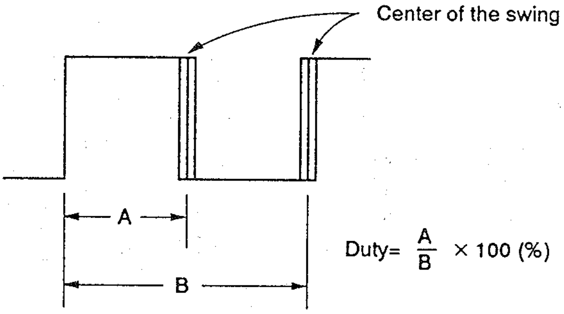


Fig. 9-8.

9-6. VIDEO ADJUSTMENTS

Basically, the video system must be adjusted according to the following adjustment procedures.
The color video signal supplied from the pattern generator is used as the video input signal for adjusting the video system in the recording mode. Check that the sync signal and the color burst signal satisfy the standards specified for the set-ups for adjustments shown in Figs. 9-2 and 9-3.
Use a ME tape unless specified otherwise. Also check that the Hi8 switch is at "AUTO" at the menu display.

[Adjusting procedure]

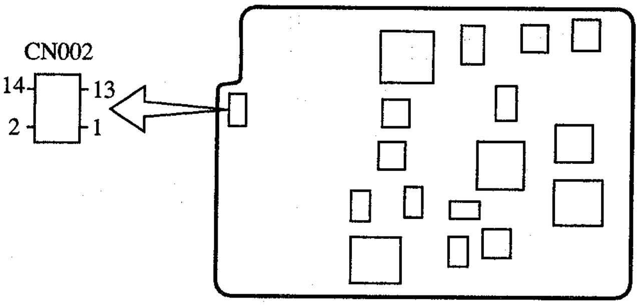
1) Playback frequency characteristics adjustment
2) Flying erase check
3) VXO oscillation frequency check
4) SYNC AGC adjustment
5) IR adjustment
6) Chroma comb filter adjustment
7) Emphasis input level adjustment
8) PB Y level adjustment
9) Normal mode Y FM deviation adjustment
10) Normal mode Y FM carrier frequency adjustment
11) Hi8 mode Y FM deviation adjustment
12) Hi8 mode Y FM carrier frequency adjustment
13) REC Y RF level adjustment
14) Chroma emphasis adjustment
15) REC C RF level adjustment
16) REC C preset adjustment
17) Hi8 MP tape REC C level adjustment
18) Normal MP tape REC C level adjustment
19) REC ATF level check
20) Chroma flicker adjustment
21) REC AFM level check
22) Chroma comb filter fine adjustment

1. Playback frequency characteristics adjustment (VC-137P board)

Purpose: Remove non-uniformity of picture quality between two heads.

Adjustment error: Flicker or over modulation of playback picture

Mode	Playback
Signal	Alignment tape: For adjusting Hi8 mode frequency characteristics (WR5-7CE)
Measurement Point	Refer to Fig. 9-10.
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	42 (MT 1A (E)), 44 (MT 1B (E)), 3E (MT 2A (E)), 40 (MT 2B (E)), 43 (MT 1A (L)), 45 (MT 1B (L)), 3F (MT 2A (L)), 41 (MT 2B (L))
Specified Value	4.5 MHz level: 8.5 MHz level= 3: (2.0 ± 0.2)



VC-137P Board Component side side B

Fig. 9-9.

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**1**	**00**	**01**	**Releasing of protect.**	
2	D	42		Change the data with the PLAY and STOP buttons, and adjust the level ratio of the 4.5 MHz and 8.5 MHz sections of the PB RF waveform of channel 1a to the specified value.	Playback mode
3	D	42		Press the PAUSE button.	
4	D	44 3E 40		Adjust in the same way for channel 1b (address 44), channel 2a (address 3E), channel 2b (address 40).	Playback mode
5	D	43		Adjust to the same data as address 42, and press the PAUSE button.	
6	D	45		Adjust to the same data as address 44, and press the PAUSE button.	
7	D	3F		Adjust to the same data as address 3E, and press the PAUSE button.	
8	D	41		Adjust to the same data as address 40, and press the PAUSE button.	

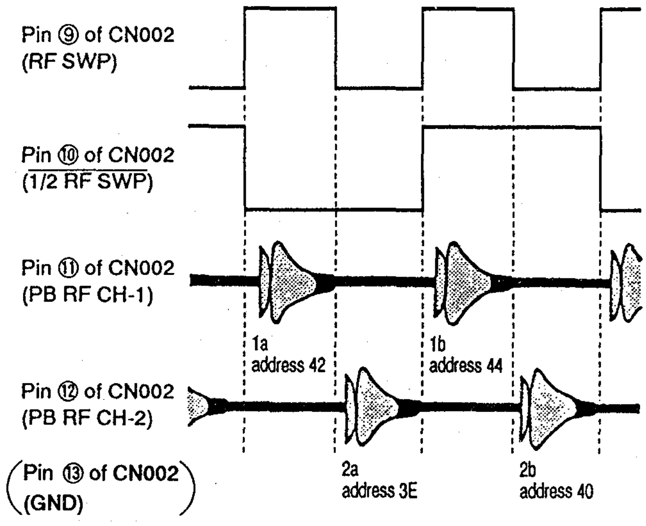

Pin ⑨ of CN002
(RF SWP)
Pin ⑩ of CN002
(1/2 RF SWP)
Pin ⑪ of CN002
(PB RF CH-1)
Pin ⑫ of CN002
(PB RF CH-2)
(Pin ⑬ of CN002
(GND))
1a
address 42
1b
address 44
2a
address 3E
2b
address 40

Fig. 9-10.

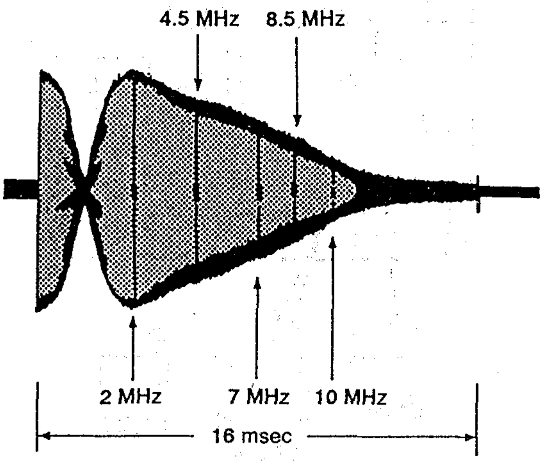

4.5 MHz
8.5 MHz
2 MHz
7 MHz
10 MHz
16 msec

Fig. 9-11.

2. Flying erase check (VC-137P board)

Mode	Record
Signal	Arbitrary
Measurement Point	Pin ⑮ of CN001 (FE (X))
Measuring Instrument	Oscilloscope and frequency counter
Specified Value	Frequency: Above 7.5 MHz Voltage: Above 6.0 Vp-p (ME tape) Above 7.5Vp-p (MP tape)

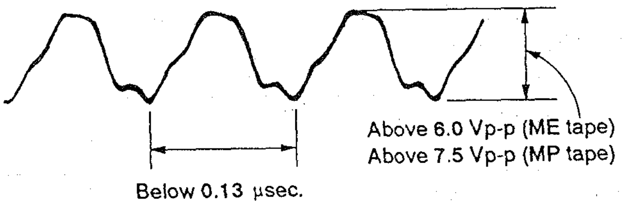

Above 6.0 Vp-p (ME tape)
Above 7.5 Vp-p (MP tape)
Below 0.13 μsec.

Fig. 9-12.

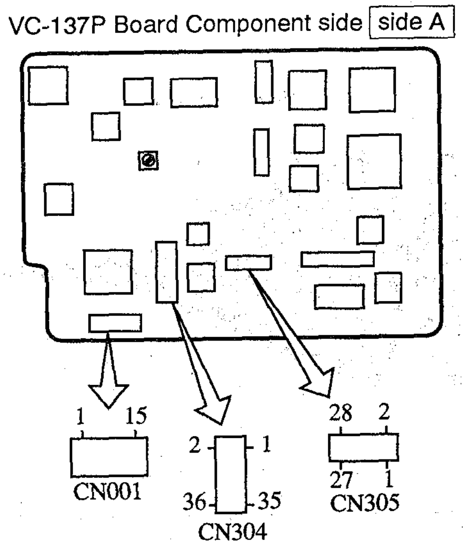

VC-137P Board Component side
side A
1
15
CN001
2
1
36
35
CN304
28
2
27
1
CN305

Fig. 9-13.

3. VXO oscillation frequency check (VC-137P board)

Mode	LINE Recording
Signal	Any tape
Measurement Point	Pin ⑬ of IC404 or Pin ㉙ of CN304 (FSC OUT)
Measuring Instrument	Frequency counter
Specified Value	4433619 ± 50 Hz

Note: Connect the frequency counter via a high impedance (approximately 10 MΩ) and low capacity (below 10 pF) buffer.

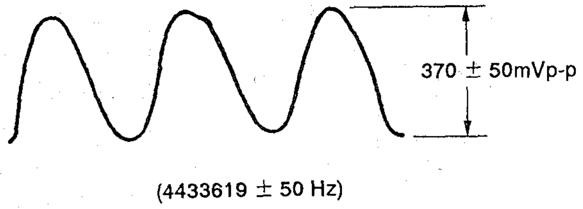
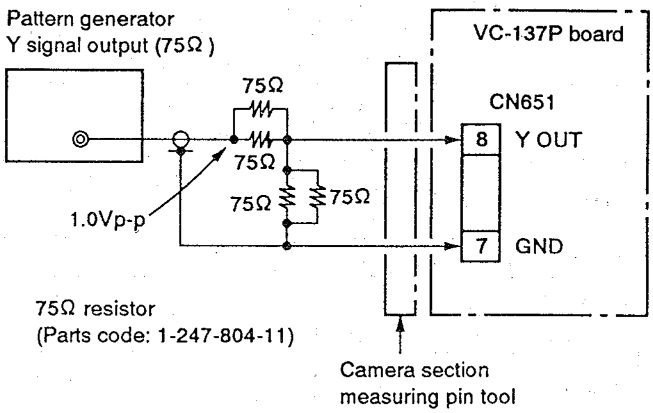

370 ± 50mVp-p
(4433619 ± 50 Hz)

Fig. 9-14.

4. SYNC AGC adjustment (VC-137P board)

Purpose: Maintains a constant recording level of video signal.
Adjustment error: Camera EE picture and OA picture may be too bright or too dark.

Mode	Camera mode recording
Signal	Y signal of color bar (Note 1)
Measurement Point	Pin ⑭ of CN305 (S-Y I/O) (Note 2 and Note 3)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	4A (SYNC AGC)
Specified Value	A = 1.00 ± 0.025 V


Pattern generator
Y signal output (75Ω)
75Ω
75Ω
75Ω
75Ω
1.0Vp-p
VC-137P board
CN651
8
Y OUT
7
GND
75Ω resistor
(Parts code: 1-247-804-11)
Camera section
measuring pin tool

Note 1: Input the Y signal using the camera section measuring pin tool (J-6082-275-A) (used together with J-6082-192-A) as shown in the following figure.
Note 2: Insert the plug in the S VIDEO input/output terminal.
Note 3: Terminate the Y signal terminal of the S VIDEO input/output terminal at 75Ω .
Note 4: When the lens block is connected, cover the lens with a black cap.

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**1**	**00**	**01**	**Releasing of protect.**	
2	D	4A		Change the data with the PLAY and STOP buttons, and adjust the Y signal level (A) to the specified value.	Recording mode
3	D	4A		Press the PAUSE button.	

Related Adjustments:
"Emphasis input level adjustment", "PB Y level adjustment", "Normal mode Y FM deviation adjustment", "Normal mode Y FM carrier frequency adjustment", "Hi8 mode Y FM deviation adjustment", "Hi8 mode Y FM carrier frequency adjustment".

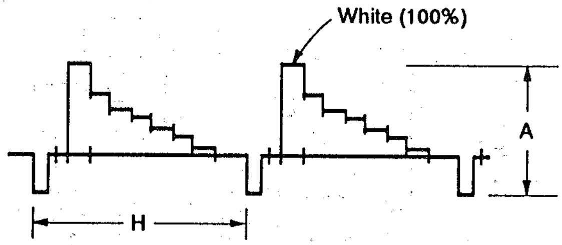

White (100%)
A
H

Fig. 9-15.

5. IR adjustment (VC-137P board)

Purpose: Adjusts the comb filter characteristics for Y/C separation during VTR record and also in playback mode. (IC401: Variation of characteristics inside CXA1207AR is removed.)

Adjustment error: Chroma flicker in VIDEO OUT (pin jack) during VTR OA. Non-uniform color.

Mode	Record
Signal	Color bar (VIDEO)
Measurement Point	Pin ⑦ of IC401 (Y COMB OUT) (JL407)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	4D (SR IR)
Specified Value	Minimum residual chroma component (A) (Below 50mVp-p)

Connection:

1) Connect Pin ⑭ of IC401 (or Pin (64)) and Pin (51) with a jumper wire.

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1				Check that the input is "VIDEO".	
2	**1**	**00**	**01**	**Releasing of protect.**	
3	D	4D		Change the data with the PLAY and STOP buttons, and minimize the residual chroma component (A).	Recording mode Connect Pin (64) of IC401 and Pin (51) with a jumper wire.
4	D	4D		Press the PAUSE button.	

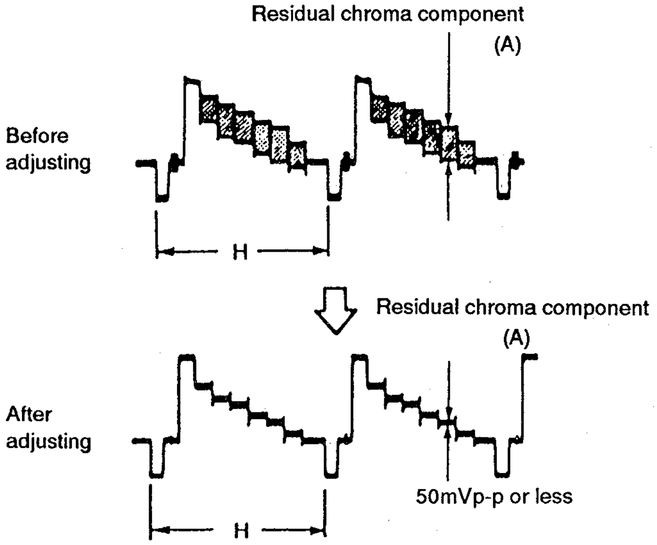

Residual chroma component
(A)
Before adjusting
H
Residual chroma component
(A)
After adjusting
50mVp-p or less
H

Fig. 9-16.

Note: Remove the lens block and adjust.

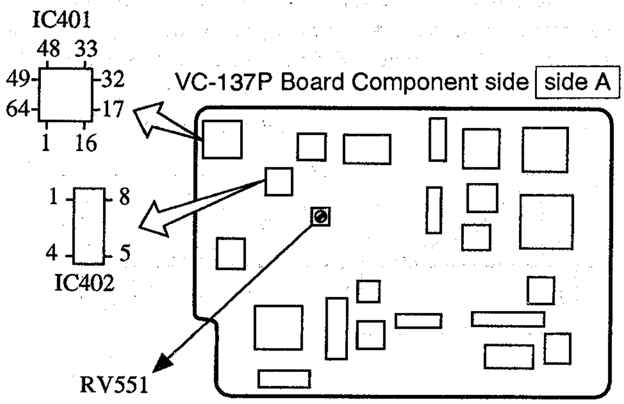

IC401
48 33
49
32
64
17
1 16
1
8
4
5
IC402
RV551
VC-137P Board Component side
side A

Fig. 9-17.

Related Adjustments:
"Chroma comb filter adjustment", "Emphasis input level adjustment", "PB Y level adjustment", "Normal mode Y FM deviation adjustment", "Normal mode Y FM carrier frequency adjustment", "Hi8 mode Y FM deviation adjustment", "Hi8 mode Y FM carrier frequency adjustment".

6. Chroma comb filter adjustment (VC-137P board)

Purpose: Adjusts the comb filter characteristics for Y/C separation during VTR record and also in playback mode.

Adjustment error: Same symptom as item 5.

Mode	Record
Signal	Color bar (VIDEO)
Measurement Point	Pin ⑪ of IC401 (C+CD) (JL410)
Measuring Instrument	Oscilloscope
Adjusting Element	RV551 (Phase)
Adjustment Page	D
Adjustment Address	4C (C COMB) (Gain)
Specified Value	Minimum residual chroma component (A) (Below 12mVp-p)

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1				Check that the input is "VIDEO".	
2	**1**	**00**	**01**	**Releasing of protect.**	
3				Minimize the residual chroma component (A) with RV551.	Recording mode
4	D	4C		Change the data with the PLAY and STOP buttons, and minimize the residual chroma component.	
5	D	4C		Press the PAUSE button.	
6				Repeat steps 3 to 5 in order.	

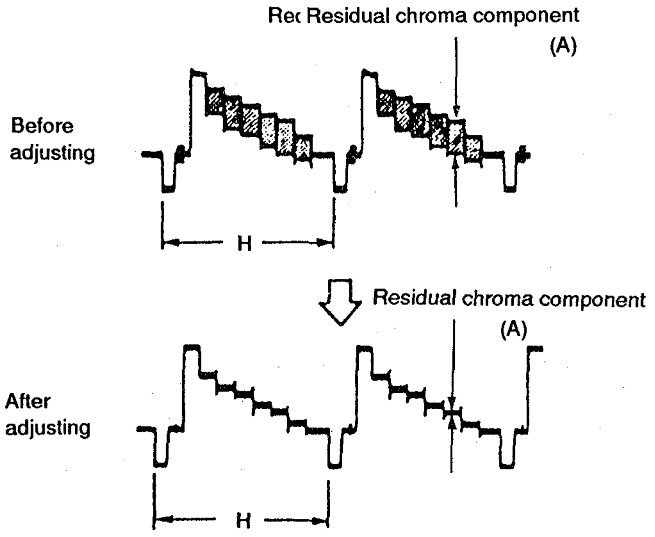

Re(Residual chroma component
(A)
Before adjusting
H
Residual chroma component
(A)
After adjusting
H

Fig. 9-18.

Related Adjustments:
"Chroma comb filter fine adjustment".

7. Emphasis input level adjustment (VC-137P board)

Purpose: Adjusts the record emphasis characteristics to the specified value.

Adjustment error: Y signal smear, blurred picture, too emphasized edge during OA.

Mode	Camera mode recording
Signal	Color bar (S VIDEO)NOTE1
Measurement Point	Pin ⑤ of IC402 (JL408)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	5A (EMP LEVEL (REC)) 5B (EMP LEVEL (PB))
Specified Value	A=0.50 ± 0.01V

NOTE 1: For details of the color bar input, see item 4 "SYNC AGC ADJ" of NOTE1. However, there must be no burst or chroma.

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**1**	**00**	**01**	**Releasing of the protect.**	
2	D	5A		Change the data with the PLAY and STOP buttons, and adjust the Y signal level (A) to the specified value.	Recording mode
3	D	5A		Press the PAUSE button.	
4	D	5B		Set the same data as address: 5A.	
5	D	5B		Press the PAUSE button.	

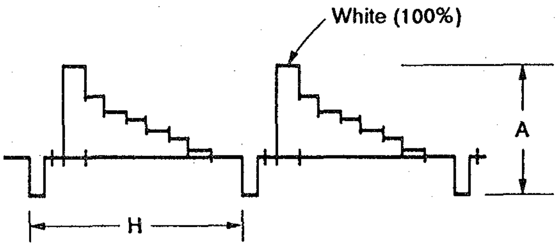


Fig. 9-19.

Related Adjustments:
"PB Y level adjustment", "Normal mode Y FM deviation adjustment", "Hi8 mode Y FM deviation adjustment".

8. PB Y level adjustment (VC-137P board)

Purpose: Adjusts playback video level for specified value.
Adjustment error: Too bright or too dark playback picture

Mode	Playback
Signal	Alignment tape: For checking operations Color bar section • Normal mode WR5-5CSP • Hi8 mode WR5-8CSE
Measurement Point	Pin ⑭ of CN305 (S-Y I/O) or Pin ⑮ of IC401 (Note 1 and Note2)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	• Normal mode 59 (PB Y L) • Hi8 mode 58 (PB Y E)
Specified Value	A=1.00 ± 0.02V

Note 1: Insert the plug into the S VIDEO input/output terminal.
Note 2: Terminate the Y signal terminal of the S VIDEO input/output terminal at 75Ω .

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**1**	**00**	**01**	**Releasing of protect.**	
2				Play back the color bar section of the normal mode alignment tape.	
3	D	59		Change the data with the PLAY and STOP buttons, and adjust the playback signal level (A) to the specified value.	Play back WR5-5CSP.
4	D	59		Press the PAUSE button.	
5				Play back the color bar section of the Hi8 mode alignment tape.	
6	D	58		Change the data with the PLAY and STOP buttons, and adjust the playback signal level (A) to the specified value.	Play back WR5-8CSE.
7	D	58		Press the PAUSE button.	

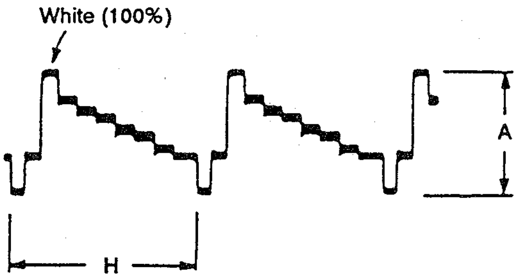


Fig. 9-20.

9. Normal mode Y FM deviation adjustment (VC-137P board)

Purpose: Adjusts the tape recording FM signal to the 8 mm specifications.

Adjustment error: Too bright or too dark OA picture. Over modulation picture
(Too wide deviation) (Too narrow deviation)

Mode	Record and playback
Signal	Color bar (S VIDEO)
Measurement Point	Pin ⑭ of CN305 (S-Y I/O) (Note 2 and Note 3)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	51 (DEV. -L)
Specified Value	A=1.00 ± 0.04V

Note 1: Check that the "Emphasis input level adjustment" and "PB Y level adjustment" have been completed.

Note 2: Insert the plug into the S VIDEO input/output terminal.

Note 3: Terminate the Y signal terminal of the S VIDEO input/output terminal at 75Ω .

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1				Load a normal MP type tape.	
2	1	00	01	**Releasing of protect.**	
3				Record the color bar signal.	Normal MP tape
4				Play back the recorded signal.	
5				Compare the playback signal level (A) with the specified value. If it satisfies the value, the adjustment is completed.	
6	D	51		If not,: Change the data with the PLAY and STOP buttons. • Decrease the data if the playback signal level is greater than the specified value. • Increase the data if smaller.	
7	D	51		Press the PAUSE button.	
8				Return to step 3.	

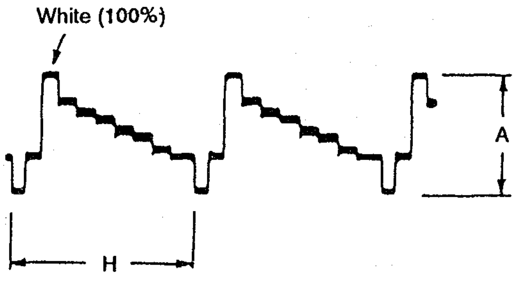


Fig. 9-21.

Related Adjustments:
"Normal mode Y FM carrier frequency adjustment".

10. Normal mode Y FM carrier frequency adjustment (VC-137P board)

Purpose: Adjusts the tape recording FM signal to the 8 mm specifications.

Adjustment error: (When frequency is low.) Blurred OA picture
(When frequency is high) Over modulation picture or poor S/N

Mode	Record
Signal	Non-signal
Measurement Point	Pin ㊸ of IC401 (Y RF OUT)
Measuring Instrument	Frequency counter
Adjustment Page	D
Adjustment Address	4F (CAR. –L)
Specified Value	4.37 ± 0.04 MHz

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1				Load a normal MP type tape.	
2	**1**	**00**	**01**	**Releasing of protect.**	
3	D	4F		Change the data with the PLAY and STOP buttons, and adjust the Y FM carrier frequency to the specified value.	Normal MP tape Recording mode, no signal input
4	D	4F		Press the PAUSE button.	

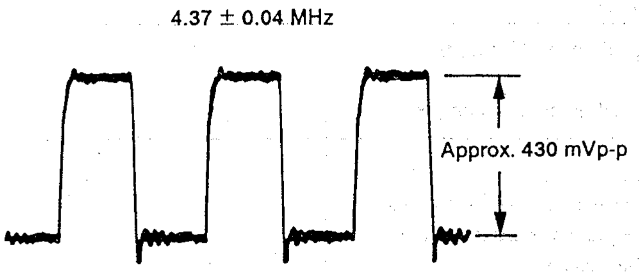


Fig. 9-22.

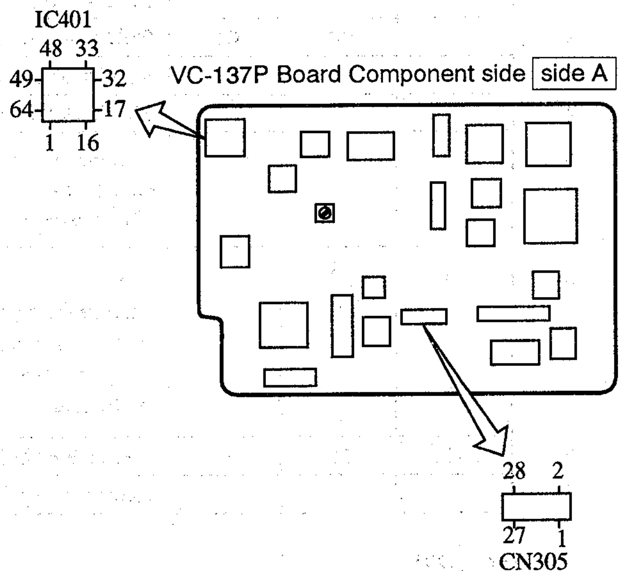


Fig. 9-23.

11. Hi8 mode Y FM deviation adjustment (VC-137P board)

Purpose: Adjusts the tape recording FM signal to the Hi8 specifications.

Adjustment error: (When deviation is too wide.) Too bright OA picture. Over modulation
(When deviation is too narrow.) Dark picture

Mode	Record and playback
Signal	Color bar (S VIDEO)
Measurement Point	Pin ⑭ of CN305 (S-Y I/O) (Note 2 and Note 3)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	50 (DEV. -E)
Specified Value	A = 1.00 ± 0.04 V

Note 1: Check that "Emphasis input level adjustment" and "PB Y level adjustment" have been completed.

Note 2: Insert the plug into the S VIDEO input/output terminal.

Note 3: Terminate the Y signal terminal of the S VIDEO input/output terminal at 75Ω .

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1				Load a normal ME type tape.	
2	**1**	**00**	**01**	**Releasing of protect.**	
3				Record the color bar signal.	Hi8 ME tape
4				Play back the recorded signal.	
5				Compare the playback signal level (A) with the specified value. If it satisfies the value, the adjustment is completed.	
6	D	50		If not,: Change the data with the PLAY and STOP buttons. • Decrease the data if the playback signal level is greater than the specified value. • Increase the data if smaller.	
7	D	50		Press the PAUSE button.	
8				Return to step 3.	

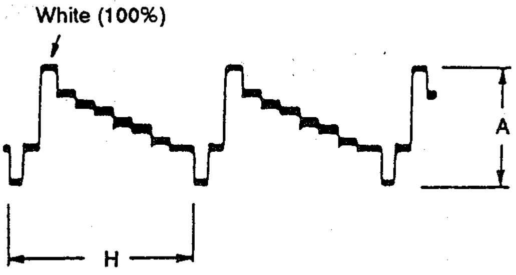


Fig. 9-24.

Related Adjustments:
"Hi8 mode Y FM carrier frequency adjustment".

12. Hi8 mode Y FM carrier frequency adjustment (VC-137P board)

Purpose: Adjust the tape recording FM signal to the Hi8 specifications.

Adjustment error: (When frequency is high) Over modulation picture or poor S/N
(When frequency is low.) Blurred OA picture or poor resolution

Mode	Record
Signal	No signal
Measurement Point	Pin ㊸ of IC401 (Y RF OUT)
Measuring Instrument	Frequency counter
Adjustment Page	D
Adjustment Address	4E (CAR. –E)
Specified Value	5.98 ± 0.04 MHz

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1				Load a ME type tape.	
2	**1**	**00**	**01**	**Release the protect.**	
3	D	4E		Change the data with the PLAY and STOP buttons, and adjust the Y FM carrier frequency to the specified value.	Hi8 ME tape Recording mode, no signal input
4	D	4E		Press the PAUSE button.	

5.98 ± 0.04 MHz

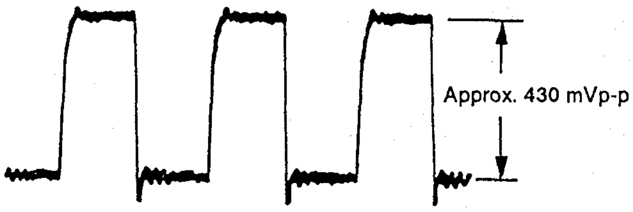


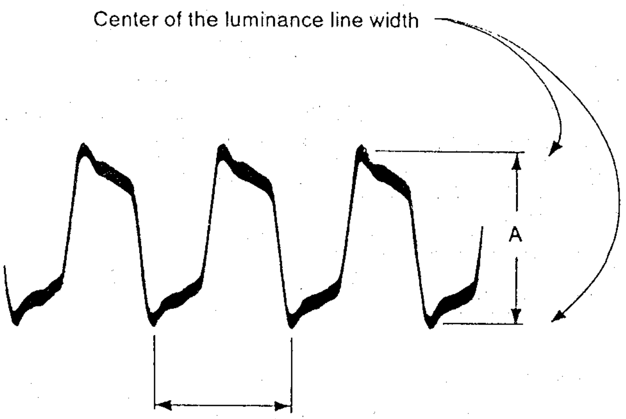
Fig. 9-25.

13. REC Y RF level adjustment (VC-137P board)

Purpose: Maintains a constant signal level of Y FM, chroma AFM and ATF signal when recording on tape.

Adjustment error: (When level is low.) Poor S/N of playback picture or loss of servo
(When level is high) Over modulation picture

Mode	Record
Signal	No signal
Measurement Point	Pin ⑦ of CN002 (REC 1A) (JL021)
Measuring Instrument	Oscilloscope (Note 1)
Adjustment Page	D
Adjustment Address	52 (REC Y (ME E)), 53 (REC Y (MP E)), 54 (REC Y (ME L)), 55 (REC Y (MP L))
Specified Value	• ME E mode A=310 ± 5mVp-p • MP E mode A=290 ± 5mVp-p • MP L mode A=280 ± 5mVp-p • ME L mode A=310 ± 5mVp-p



E mode (Hi8) : Approx. 0.167 μsec
L mode (Normal mode) : Approx. 0.228 μsec

Fig. 9-26.

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1				Check that the Hi8 switch is at "AUTO" at the menu display.	
2	**1**	**00**	**01**	**Releasing of protect.**	
3				Load a ME tape, and set the recording mode. (Setting the ME E mode)	
4	D	52		Change the data with the PLAY and STOP buttons, and adjust the REC Y RF level (A) to the specified value. (ME E mode adjustment)	Hi8 ME tape, recording mode
5	D	52		Press the PAUSE button.	
6	D	54		Set the same data as address 52, and press the PAUSE button. (ME L mode adjustment)	
7				Load a Hi8 MP tape, and set the recording mode. (Setting the MP E mode)	
8	D	53		Change the data with the PLAY and STOP buttons, and adjust the REC Y RF level (A) to the specified value. (MP E mode adjustment)	Hi8 ME tape, recording mode
9	D	53		Press the PAUSE button.	
10				Load a normal MP tape, and set the recording mode. (Setting the MP L mode)	
11	D	55		Change the data with the PLAY and STOP buttons, and adjust the REC Y RF level (A) to the specified value. (MP L mode adjustment)	Normal MP tape, recording mode
12	D	55		Press the PAUSE button.	

Note 1: When the oscilloscope has the bandwidth limit function, switch off this function and make measurement. (Use in wide band mode.)

14. Chroma emphasis fo adjustment (VC-137P board)

Purpose: Remove variation of chroma emphasis filter (FL405) characteristics

Adjustment error: Boundaries of playback colors have different color.

Mode	Record
Signal	Color bar (VIDEO)
Measurement Point	Pin ㉔ of IC404 (JL402)
Measuring Instrument	Oscilloscope
Adjustment Page	FL405
Adjustment Address	Minimum fo components

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1				Minimize the amplitude of the rear part of the yellow section of the chroma signal with FL405.	

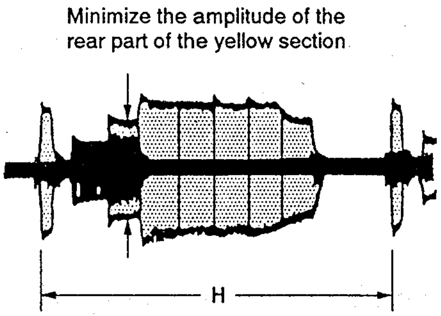

Minimize the amplitude of the rear part of the yellow section
H

Fig. 9-27.

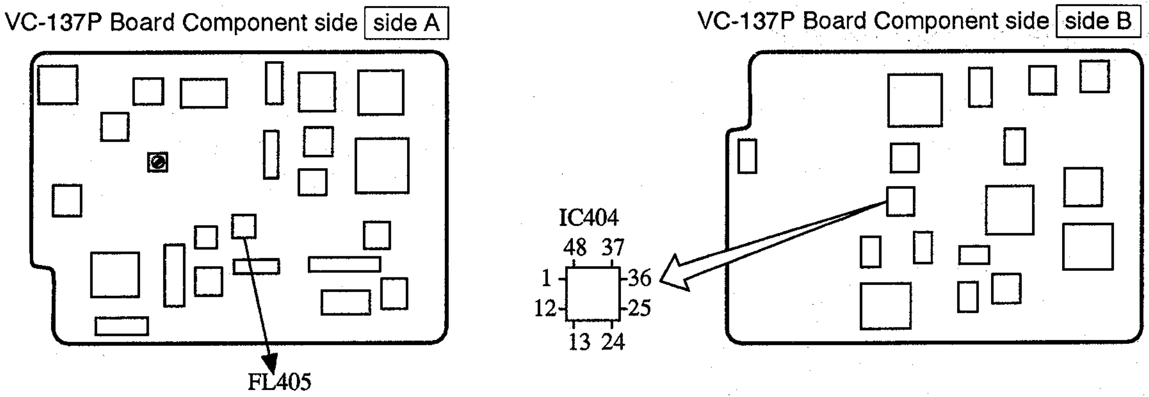

VC-137P Board Component side side A
FL405
VC-137P Board Component side side B
IC404
48 37
1
12
36
25
13 24

Fig. 9-28.

15. REC C RF level adjustment (VC-137P board)

Purpose: Maintains a constant chroma recording level on tape.

Adjustment error: (When level is low.) Poor S/N of OA picture
(When level is high) Poor Y S/N at darker color or white over modulation

Mode	Record
Signal	Color bar (VIDEO)
Measurement Point	Pin ③ of IC405 (REC C RF) (JL029)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	8C (REC C RV)
Specified Value	A=70 ± 2 mVp-p

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**1**	**00**	**01**	**Releasing of protect.**	
2	D	8C		Change the data with the PLAY and STOP buttons, and adjust the amplitude (A) of the flat section of the "red" of the REC C RF signal to the specified value.	Recording mode
3	D	8C		Press the PAUSE button.	

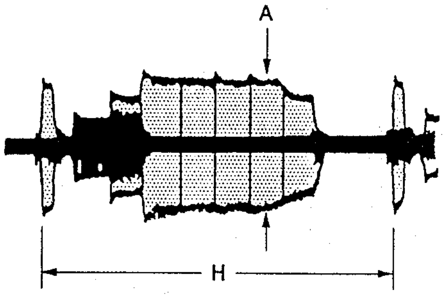


Fig. 9-29.

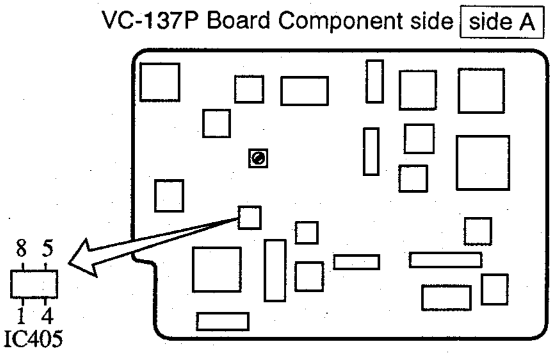


Fig. 9-30.

Related Adjustments:
"REC preset adjustment", "Hi8 MP tape REC C level adjustment", "Normal MP tape REC C level adjustment", "Chroma flicker check and adjustment".

16. REC C preset adjustment (VC-137P board)

Purpose: Same as item 15. (Level adjustment with Hi8 ME tape)
Adjustment error: Same as item 15.

Mode	Record
Signal	Color bar
Measurement Point	CH1 (1:1 probe) CH1a: Pin ⑦ of CN002 (JL021) CH2a: Pin ⑧ of CN002 (JL022) CH1b: Pin ⑤ of CN002 (JL019) CH2b: Pin ⑥ of CN002 (JL020) CH2 (10:1 probe) Video input/output terminal
Measuring Instrument	Oscilloscope TRIGGER SOURCE: CH2
Adjustment Page	D
Adjustment Address	30 (REC C 1A (ME)), 31 (REC C 1A (MP)), 32 (REC C 1B (ME)), 33 (REC C 1B (MP)), 34 (REC C 2A (ME)), 35 (REC C 2A (MP)), 36 (REC C 2B (ME)), 37 (REC C 2B (MP))
Specified Value	A=60 ± 2 mVp-p

Note: Use a ME type tape. Check that the "Hi8" switch is at "AUTO" at the menu display.

Connection:

1) Remove CN801 of the AU-154P board.
2) Connect Pin ⑨ of IC202 and GND with a 0.01 μF capacitor (1-101-004-00).

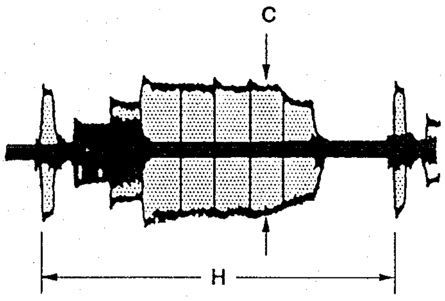


Fig. 9-31.

VC-137P Board Component side side A

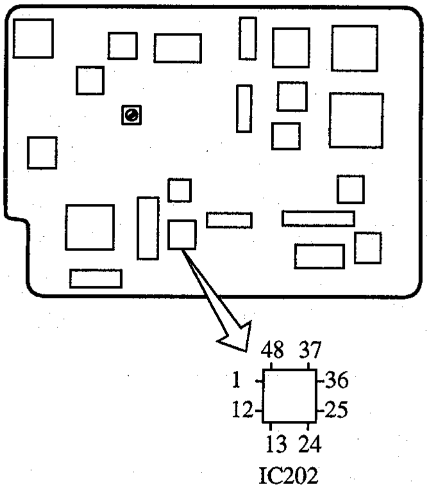


Fig. 9-32.

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**1**	**00**	**01**	**Releasing of protect.**	
2	D	52		Note down the data, and set the data to 00. (Minimizing the REC Y RF level)	
3	D	52		Press the PAUSE button.	
4				Connect the CH1 probe of the oscilloscope (REC 1a) to Pin ⑦ of CN002.	
5	D	30		Change the data with the PLAY and STOP buttons, and adjust the CH1a REC C level (C) to the specified value.	Hi8 ME tape, recording mode
6	D	30		Press the PAUSE button.	
7	D	32 34 36		Adjust the REC C level of CH2a (address 34), CH1b (address 32) and CH2b (address 36) respectively in the same way.	Hi8 ME tape, recording mode
8	D	31		Set the same data as address 30, and press the PAUSE button.	
9	D	33		Set the same data as address 32, and press the PAUSE button.	
10	D	35		Set the same data as address 34, and press the PAUSE button.	
11	D	37		Set the same data as address 36, and press the PAUSE button.	
12	D	52		Set the data noted down at step 2, and press the PAUSE button.	

Related Adjustments:
"Hi8 MP tape REC C level adjustment", "Normal MP tape REC C level adjustment".

17. Hi8 MP tape REC C adjustment (VC-137P board)

Purpose: Maintains a constant chroma recording level on Hi8 MP tape.

Adjustment error: Same as item 15.

Mode	Record
Signal	Color bar
Measurement Point	Pin ⑦ of CN002 (REC 1a)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	85 (ME CONT (MP E))
Specified Value	A = 40 ± 1.5 mVp-p

Note: Check that the Hi8 switch is at "AUTO" at the menu display.

Connection:

1) Remove CN801 of the AU-154P board.
2) Connect Pin ⑨ of IC202 and GND with a 0.01 μF capacitor (1-101-004-00).

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1				Load a Hi8 MP tape, and set the recording mode.	
2	**1**	**00**	**01**	**Releasing of protect.**	
3	D	53		Note down the data, and set the data to 00. (Minimizing the REC Y RF level)	
4	D	53		Press the PAUSE button.	
5	D	85		Change the data with the PLAY and STOP buttons, and adjust the REC C RF level (A) to the specified value.	Hi8 MP tape, recording mode
6	D	85		Press the PAUSE button.	
7	D	89		Write the page D, address 85 data. Press the PAUSE button.	LP REC level set
8	D	53		Set the data noted down at step 2, and press the PAUSE button.	

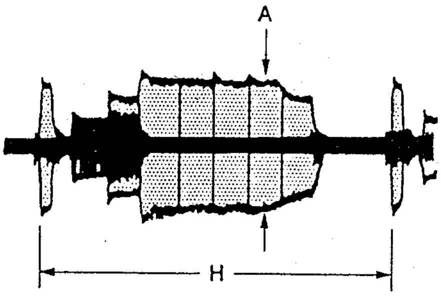


Fig. 9-33.

18. Normal MP tape REC C adjustment (VC-137P board)

Purpose: Maintains a constant chroma recording level on normal MP tape.

Adjustment error: Same as item 15. When level is too big, fine lattice-shape dots appear in Y signal on the darker chroma area.

Mode	Record
Signal	Color bar
Measurement Point	Pin ⑦ of CN002 (REC 1a)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	87 (ME CONT (MP L))
Specified Value	A = 50 ± 1.5 mVp-p

Connection:

1) Remove CN801 of the AU-154P board.
2) Connect Pin ⑨ of IC202 and GND with a 0.01 μF capacitor (1-101-004-00).

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1				Load a normal MP tape, and set the recording mode.	
2	**1**	**00**	**01**	**Releasing of protect.**	
3	D	55		Note down the data, and set the data to 00. (Minimizing the REC Y RF level)	
4	D	55		Press the PAUSE button.	
5	D	87		Change the data with the PLAY and STOP buttons, and adjust the REC C RF level (A) to the specified value.	Normal MP tape, recording mode
6	D	87		Press the PAUSE button.	
7	D	8B		Write the page D, address 87 data. Press the PAUSE button.	LP REC level set
8	D	55		Set the data noted down at step 2, and press the PAUSE button.	

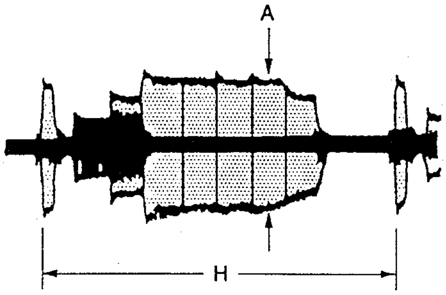


Fig. 9-34.

19. REC ATF level check (VC-137P board)

Purpose: Check that the tape recording ATF level is correct.
Adjustment error: Loss of servo. SP <—> LP identification error

Mode	Record
Signal	No signal
Measurement Point	CH1a: (⑦ of CN002), CH2a: (⑧ of CN002), CH1b: (⑤ of CN002), CH2b: (⑥ of CN002)
Measuring Instrument	Oscilloscope
Specified Value	A = 9.5 ± 2.0 mVp-p

Note: Use a ME type tape. Check that the "Hi8" switch is at "AUTO" at the menu display.

Connection:
1) Remove CN801 of the AU-154 board.

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**1**	**00**	**01**	**Releasing of protect.**	
2	D	52		Note down the data, and set the data to 00. (Minimizing the REC Y RF level)	
3	D	52		Press the PAUSE button.	
4				Check that the REC ATF signal level (A) satisfies the specified value for CH1a to CH2b.	Hi8 ME tape, recording mode
5	D	52		Set the data noted down at step 2, and press the PAUSE button.	

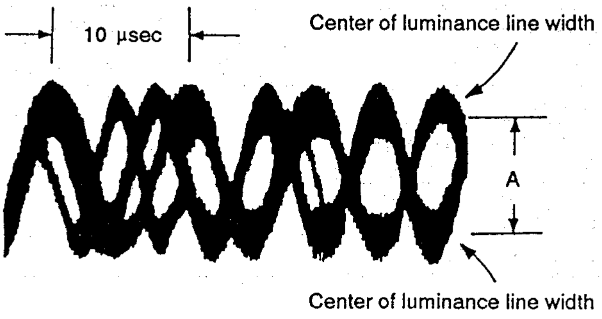

10 μsec
Center of luminance line width
A
Center of luminance line width

Fig. 9-35.

20. Chroma flicker check and adjustment (VC-137P board)

Purpose: Remove chroma flicker on OA picture (When using MP tape)

Adjustment error: Chroma flicker on OA picture (When using MP tape)

Mode	Self record/playback
Signal	Color bar
Measurement Point	CH-1 (1:1 probe): Pin ㊷ of IC404 (PBC RF IN) CH-2 (10:1 probe): Pin ⑩ of CN002 ($\overline{\text{1/2 RF SWP}}$)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	30 (REC C 1A (ME)), 31 (REC C 1A (MP)), 32 (REC C 1B (ME)), 33 (REC C 1B (MP)), 34 (REC C 2A (ME)), 35 (REC C 2A (MP)), 36 (REC C 2B (ME)), 37 (REC C 2B (MP))
Specified Value	$\frac{Vc1a}{Vc1b} \times 100 = 100^{+12}_{-11}$ (%) $\frac{Vc2a}{Vc2b} \times 100 = 100^{+12}_{-11}$ (%)

Note 1: Check that "REC C preset adjustment" and "REC ATF level check" have been completed.

Note 2: Use a ME type tape and check that the "Hi8" switch is at "AUTO" at the menu display.

Checking method:

Order	Page	Address	Data	Procedure	Conditions
1				Record the color bar signal.	Hi8 ME tape, recording mode
2				Play back the recorded section.	
3				Measure the playback levels of channels 1a, 1b, 2a, 2b, and take them as Vc1a, Vc1b, Vc2a, Vc2b respectively.	Playback mode
4				Check that the specified values have been satisfied. If not, perform the following adjustments.	

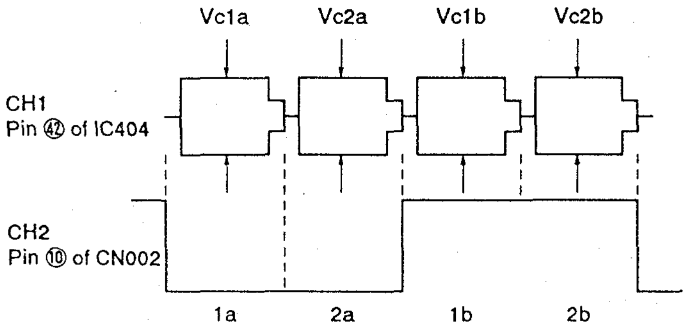


Fig. 9-36.

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1				Calculate Δ Vc1 and Vc2 from the values obtained at step 3 of "Checking Method" using the following equation. $\Delta \mathrm{Vc1} = \lvert \mathrm{Vc1a} - \mathrm{Vc1b} \rvert / 2$ $\Delta \mathrm{Vc2} = \lvert \mathrm{Vc2a} - \mathrm{Vc2b} \rvert / 2$ **Note:** | | shows the absolute value.	
2				Calculate the new specification values for "REC C preset adjustment" using the following equation. The smaller value when the playback levels are Vc1a and Vc1b is $\left\{\frac{(\text{The smaller value of Vc1a and Vc1b}) + \Delta\text{Vc1}}{(\text{The smaller value of Vc1a and Vc1b})}\right\} \times 60\ (\text{mVp-p})$ The greater value when the playback levels are Vc1a and Vc1b is $\left\{\frac{(\text{The greater value of Vc1a and Vc1b}) + \Delta\text{Vc1}}{(\text{The greater value of Vc1a and Vc1b})}\right\} \times 60\ (\text{mVp-p})$ The smaller value when the playback levels are Vc2a and Vc2b is $\left\{\frac{(\text{The smaller value of Vc2a and Vc2b}) + \Delta\text{Vc2}}{(\text{The smaller value of Vc2a and Vc2b})}\right\} \times 60\ (\text{mVp-p})$ The greater value when the playback levels are Vc2a and Vc2b is $\left\{\frac{(\text{The greatervalue fo Vc2a and Vc2b}) + \Delta\text{Vc2}}{(\text{The greater value of Vc2a and Vc2b})}\right\} \times 60\ (\text{mVp-p})$	
3				Perform "REC C preset adjustment" taking the values calculated from Vc1a, Vc1b, Vc2a, Vc2b at step 2 as the specified values for 1a, 1b, 2a, 2b respecitively.	
4				After the adjustment, perform "Chroma flicker check" again, and repeat the adjustment until the specified values are satisfied.	

VC-137P Board Component side side B

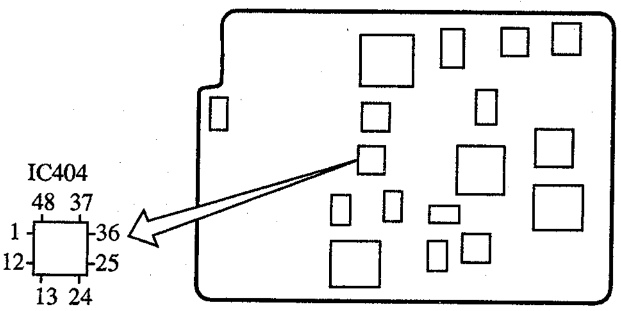


Fig. 9-37.

21. REC AFM level check (VC-137P board)

Purpose: Check that the tape recording AFM level is correct.
Adjustment error: Poor audio S/N. Chroma beat on OA picture

Mode	Record
Signal	No signal
Measurement Point	CH1a: (Pin ⑦ of CN002), CH2a: (Pin ⑧ of CN002), CH1b: (Pin ⑤ of CN002), CH2b: (Pin ⑥ of CN002)
Measuring Instrument	Oscilloscope
Specified Value	A = 13.5 ± 2.5mVp-p

Note 1: Use a ME type tape, and check that the "Hi8" switch is at "AUTO".

Note 2: Do not insert anything into the right audio input terminal.
(Monaural recording mode)

Connection:

1) Connect Pin ⑨ of IC202 and GND with a 0.01 μF capacitor (1-101-004-00).

Checking method:

Order	Page	Address	Data	Procedure	Conditions
1	**1**	**00**	**01**	**Releasing of protect.**	
2	D	52		Note down the data, and set the data to 00. (Minimizing the REC Y RF level)	
3	D	52		Press the PAUSE button.	
4				Check that the REC AFM signal level (A) satisfies the specified value for CH1a to CH2a.	Hi8 ME tape, recording mode
5	D	52		Set the data noted down at step 2, and press the PAUSE button of the adjusting remote commander.	

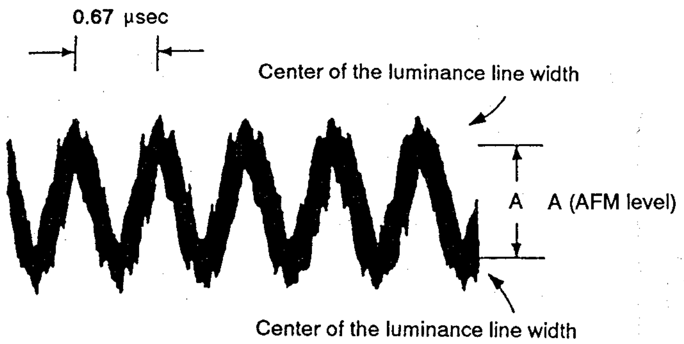

0.67 μsec
Center of the luminance line width
A
A (AFM level)
Center of the luminance line width

Fig. 9-38.

22. Chroma comb filter fine adjustment (VC-137P board)

Purpose: Check that the adjustment point in item 6 has not moved in playback mode. Adjust when necessary.

Adjustment error: Horizontal chroma streaking on PB picture

Mode	Playback
Signal	Alignment tape: For checking operations Color bar section
Measurement Point	Video input/output terminal
Measuring Instrument	Vectorscope
Adjusting Element	RV551
Adjustment Page	D
Adjustment Address	4C (C COMB)
Specified Value	Minimum color luminance point movement when the "Edit" switch is turned on/off

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**1**	**00**	**01**	**Releasing of protect.**	
2				Minimize the movements of the color luminance point when the edit is on/off with RV551.	Playback mode
3	D	4C		Change the data with the PLAY and STOP buttons, and minimize the movements of the color luminance point when the edit is on/off.	Playback mode
4	D	4C		Press the PAUSE button.	
5				Repeat steps 2 to 4.	

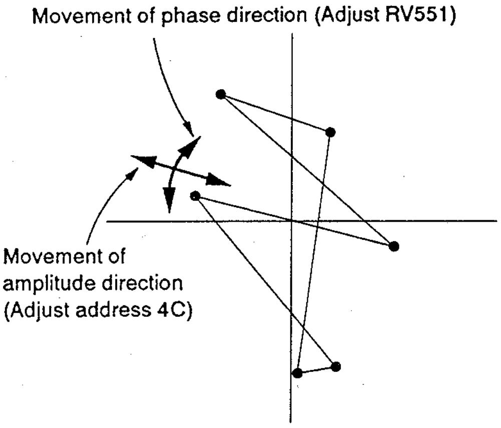

Movement of phase direction (Adjust RV551)
Movement of amplitude direction (Adjust address 4C)

Fig. 9-39.

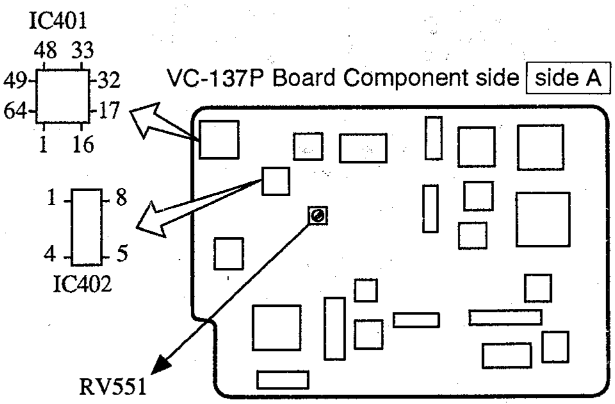

IC401
48
33
49
32
64
17
1
16
1
8
4
5
IC402
VC-137P Board Component side
side A
RV551

Fig. 9-40.

23. Delay burst pahse adjustment (VC-137P board)

Purpose: Reference oscillation determining operating frequency of time chart.

Adjustment error: Cannot read timecode.

Mode	Playback pause
Signal	Alignment tape: For operation check (WR5-4CL) Color bar section
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope
Adjustment Page	D
Adjustment Address	67 (PAL JOG)
Specified Value	Minimum shaking of yellow and blue luminance points

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**1**	**00**	**01**	**Releasing of protect.**	
2	D	67		Change the data with the PLAY and STOP buttons, and minimize the shaking of yellow and blue luminance points.	Playback pause mode
3	D	67		Press the PAUSE button.	

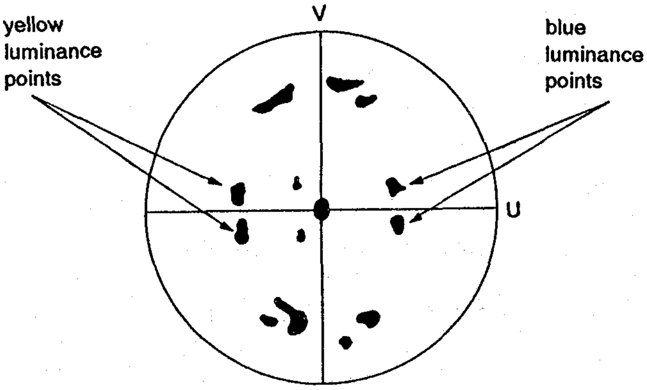


Fig. 9-41.

24. PB VCO OSC Adjustment (VC-137P board) (E model)

Mode	Playback
Signal	No Signal
Measurement Point	Pin ⑧ of IC361 (FMCK)
Measuring Instrument	Frequency counter
Adjustment Page	D
Adjustment Address	7F
Specified Value	11.27 ± 0.1 MHz

Connection:
1) Connect IC361 pin ① (duty) to IC361 pin ⑯ (SS 5V).
2) Playback a virgin tape (non-recorded).

Adjustment method:

Order	Page	Address	Data	Procedure	Conditions
1	**1**	**00**	**01**	**Releasing of protect.**	
2	D	7F		Adjust so that the (FMCK) frequency meets the specifications using the PLAY and STOP buttons.	
3	D	7F		Press the PAUSE button.	

9-7. AUDIO SYSTEM ADJUSTMENT

- Adjust using the color bar signal as the video signal input.
- Unless specified otherwise, use the Hi8 ME tape.

[Connecting the measuring equipments for audio]

In addition to the measuring equipments for the video system, connect the measuring equipments for the audio system as shown in Fig. 9-41, and adjust with the power supply switch at "VIDEO".

Adjust the bilingual switch of the menu screen to "OFF" unless specified otherwise.

Note: 1) When inputting the audio signal, input the same signal to both the L and R channels, unless specified otherwise.

2) Be sure to insert the plug (shorting plug or dummy plug, etc.,) into the audio input/output terminal (right). If the plug is not inserted, the monaural mode will be set, and correct adjustments cannot be carried out.

(Monaural mode)

During recording……REC AFM RF 1.7 MHz carrier will not be output.

During playback ……The L+R signal will be output from the audio input/output terminal (left).

3) Adjustments for channel R in adjustments for both channels L and R are in the [ ].

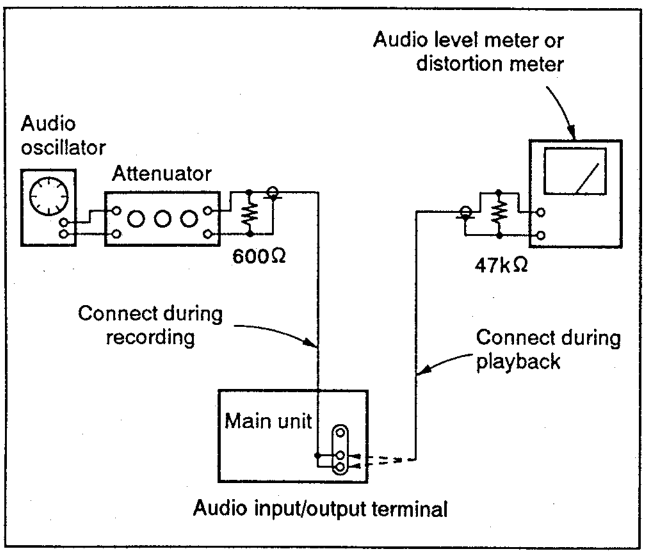

Audio level meter or distortion meter
Audio oscillator
Attenuator
600Ω
47kΩ
Connect during recording
Connect during playback
Main unit
Audio input/output terminal

Fig. 9-42.

[Adjusting Procedure]

1) 1.5 MHz recording level check
2) E-E output level check
3) REC matrix L − R check
4) 1.5 MHz deviation adjustment
5) 1.7 MHz deviation adjustment
6) Overall level characteristics, distortion rate check
7) Separation check
8) Overall noise level check

1. 1.5 MHz record level check (AU-154P board)

Purpose : Record current check

Mode	Record (Monaural)
Signal	No signal
Measurement Point	Pins ⑦ of CN801 (REC AFM)
Measuring Instrument	Oscilloscope
Specified Value	A = 30 ± 4 mVp-p

Note: Do not insert the plug into the right audio input terminal.

Checking method:

Order	Procedure
1	Read the center of the luminance line width and note down the read level.

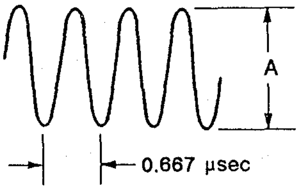


Fig. 9-43.

2. E-E output level check (AU-154P board)

Purpose : E-E output level check

Mode	Record
Signal	400 Hz, -7.5 dBs right audio input terminal left [right]
Measurement Point	Pin ㊿ of IC801 [or Pin ㊾]
Measuring Instrument	Oscilloscope
Specified Value	925 $^{+307}_{-232}$ mVp-p (− 7.5 ± 2.5 dBs)

3. REC matrix L-R adjustment (AU-154P board)

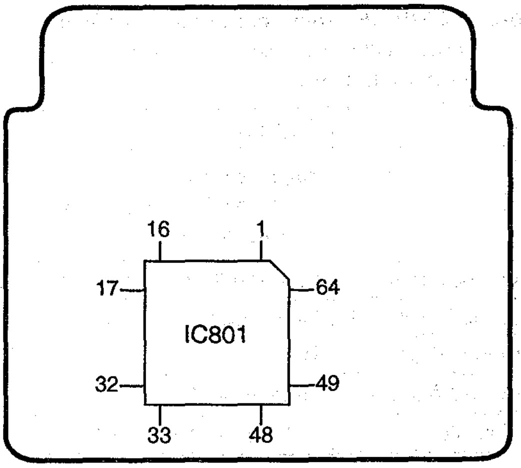
Purpose : Record matrix separation adjustment. Error in this adjustment value means poor OA separation.

Mode	Record
Signal	400 Hz, − 7.5 dBs Input to both lef and right terminals L and R are input in same phase.
Measurement Point	Pin ⑤ of IC801
Measuring Instrument	Oscilloscope (Use 1:1 probe)
Adjustment Page	D
Adjustment Address	78 (REC/PB MX (REC))
Specified Value	15mV p-p or less

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**1**	**00**	**01**	**Releasing of protect.**	
2	D	78		Change the data with the PLAY and STOP buttons, and minimize the 400 Hz signal level.	
3	D	78		Press the PAUSE button.	

AU-154P BOARD A SIDE



AU-154P BOARD B SIDE

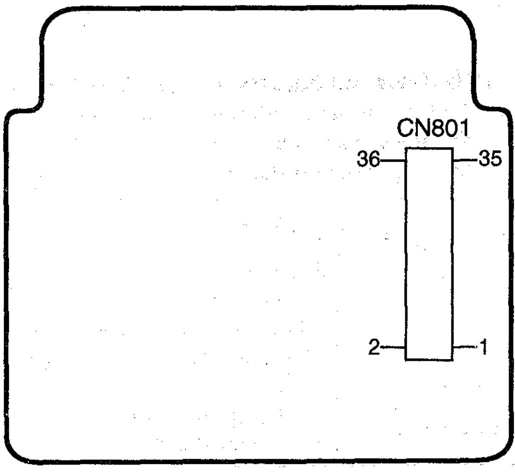


Fig. 9-44.

4. 1.5 MHz deviation adjustment

Purpose : 1.5 MHz deviation adjustment. Error in this adjustment value means loss of tape interchangeability.

Mode	Playback
Signal	Alignment tape: For checking operations (WR5-5CSP)
Measurement Point	Left or right audio output terminal
Measuring Instrument	Oscilloscope, level meter
Adjustment Page	D
Adjustment Address	7B (1.5 DEV)
Specified Value	− 7.5 ± 0.5dBs (925 ± 55mVp-p)

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**1**	**00**	**01**	**Releasing of protect.**	
2	D	7B		Change the data with the PLAY and STOP buttons, and adjust the 400 Hz signal level to the specified value.	WR5-5CSP palayback mode
3	D	7B		Press the PAUSE button.	

5. 1.7 MHz deviation adjustment (AU-154 board)

Purpose : 1.7 MHz deviation adjustment. Error in this adjustment value means incorrect interchange PB level, and poor separation.

Mode	Playback
Signal	Alignment tape: AFM stereo For checking operations (WR5-9CS) Bilingual (Monoscope) section
Measurement Point	1. Pin ⑫ of IC801 2. Pin ㊲ of IC801
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	7D (1.7 DEV)
Specified Value	8 ± 0.05 graduation

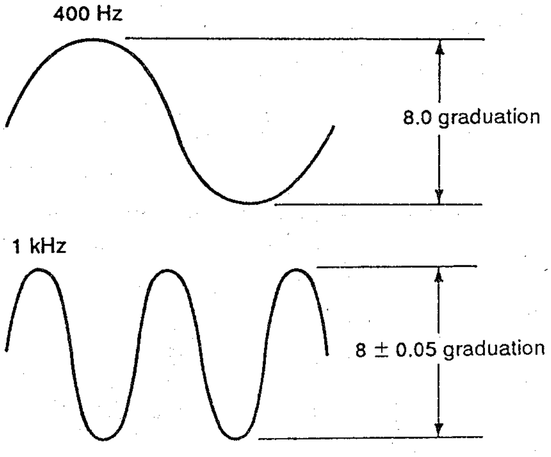


Fig. 9-45.

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**1**	**00**	**01**	**Releasing of protect.**	
2				Connect the oscilloscope to Pin ㊲ of IC801.	
3				Adjust the 400 Hz signal amplitude to the 8.0 scale using the VOLT/DIV knob of the oscilloscope.	WR5-9CS palayback mode
4				Connect the oscilloscope to Pin ⑫ of IC801.	
5	D	7D		Change the data with the PLAY and STOP buttons, and adjust the amplitude of the 1 kHz signal to the 8 ± 0.05.	WR5-9CS palayback mode
6	D	7D		Press the PAUSE button.	

6. Overall level characteristics, distortion rate check

Purpose : Distortion check

Mode	Self record/playback
Signal	400 Hz, –7.5 dBs: Left audio input terminal [right] No signal: Right audio input terminal [left]
Measurement Point	Left audio output terminal [right]
Measuring Instrument	Audio level meter and distortion meter
Specified Value	Level: – 7.5 ± 2.5dBs Distortion rate: Below0.8% (Note 2)

Note: 1) The [ ] contains points to be measured when checking the right channel.
2) Value when the 200Hz–6 kHz band pass filter is used.

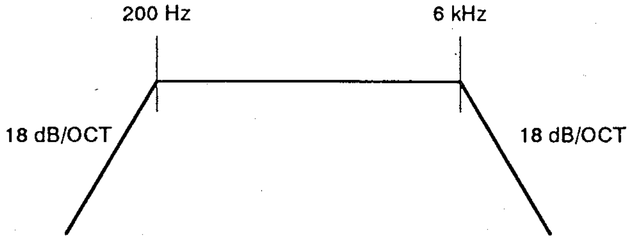


Fig. 9-45.

Checking method:

Order	Procedure
1	Input the 400 Hz, –7.5 dBs signal only to the left audio input terminal [right]. Note: Be sure to insert the shorting plug to the terminal of non-signal input.
2	Record the signal.
3	Remove the input signal, and playback the recorded section.
4	Check that the 400Hz signal level of the left audio output terminal [right] is –7.5 ± 2.5dBs, and that the distortion rate is below 0.8% (Note 2).

7. Separation check

Purpose : Separation check

Mode	Self recording/playback
Signal	No signal: Left audio input terminal [right] 400 kHz, –7.5 dBs: Right audio input terminal [left]
Measurement Point	Left audio output terminal [right]
Measuring Instrument	Audio level meter (wide Band)
Specified Value	Below -27.5 dBs

Note: The [ ] contains points to be measured when checking the right channel.

Checking method:

Order	Procedure
1	Insert a shorting plug into the left audio input terminal [right], and input a 1 kHz, –7.5 dBs signal only to the right audio input terminal [left].
2	Record the signal.
3	Remove the input signal.
4	Play back the recorded section.
5	Check that the cross talk level (1 kHz) of the left audio output terminal [right] is below –27.5 dBs.

8. Over all noise level check

Purpose : Noise level check

Mode	Self record/playback
Signal	No signal: Left and right audio output terminals
Measurement Point	Left audio output terminal [right]
Measuring Instrument	Audio level meter (Use an IHF-A curve auditory correction filter)
Specified Value	Below –62.5 dBs

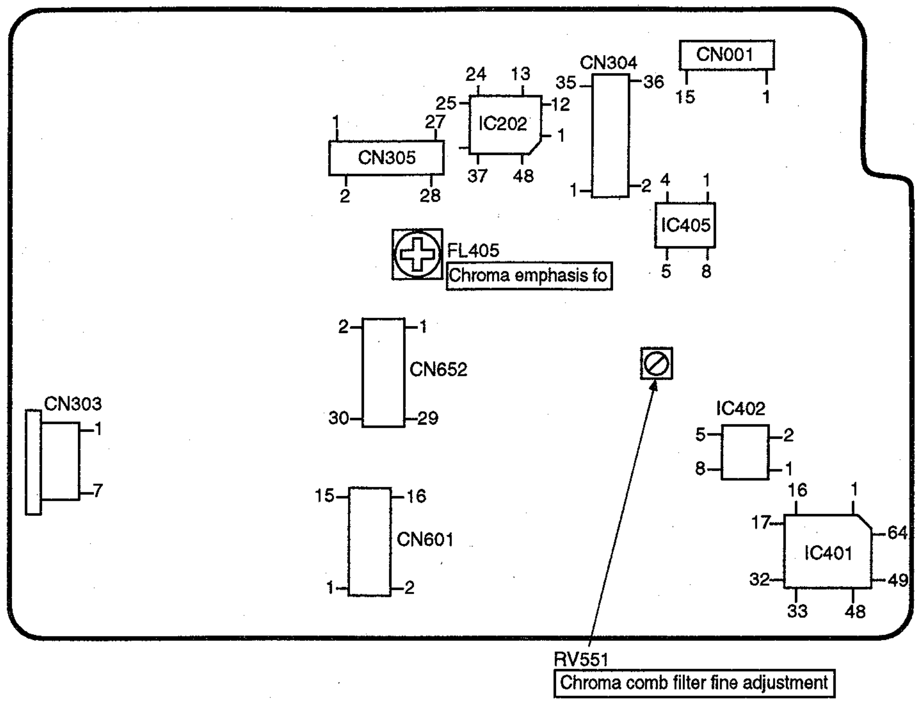
Note: The [ ] contains points to be measured when checking the right channel.

Checking method:

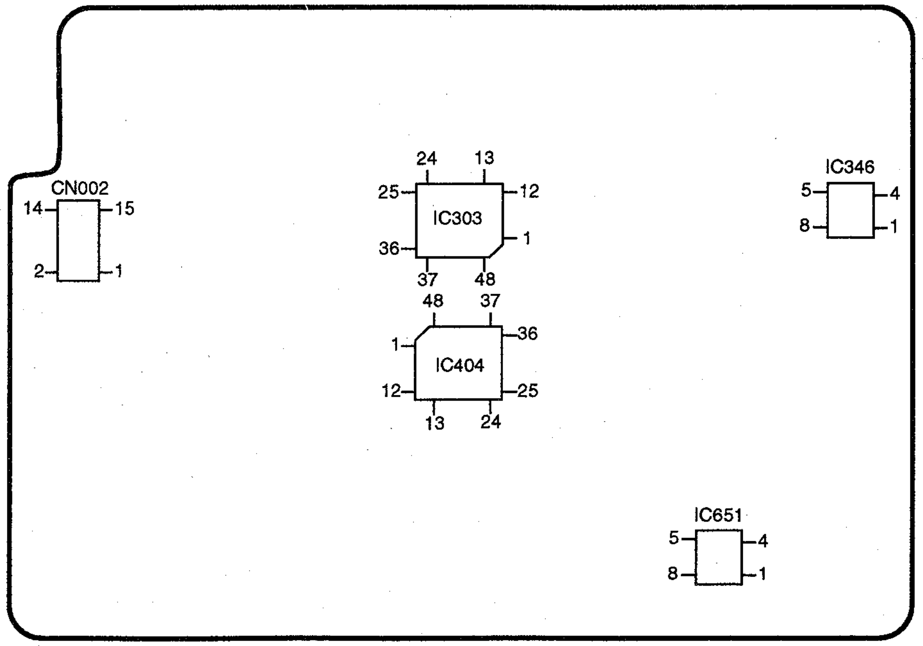
Order	Procedure
1	Insert the shorting plug to both the left and right audio input terminals.
2	Record.
3	Remove the shorting plug.
4	Play back the recorded section.
5	Check that the noise level of the left audio output terminal [right] is below –62.5 dBs.

9-8. ARRANGEMENT DIAGRAM FOR ADJUSTMENT PARTS

VC-137P BOARD A SIDE



VC-137P BOARD B SIDE



6. Overall level characteristics, distortion rate check

Purpose : Distortion check

Mode	Self record/playback
Signal	400 Hz, –7.5 dBs: Left audio input terminal [right] No signal: Right audio input terminal [left]
Measurement Point	Left audio output terminal [right]
Measuring Instrument	Audio level meter and distortion meter
Specified Value	Level: – 7.5 ± 2.5dBs Distortion rate: Below0.8% (Note 2)

Note: 1) The [ ] contains points to be measured when checking the right channel.

2) Value when the 200Hz–6 kHz band pass filter is used.

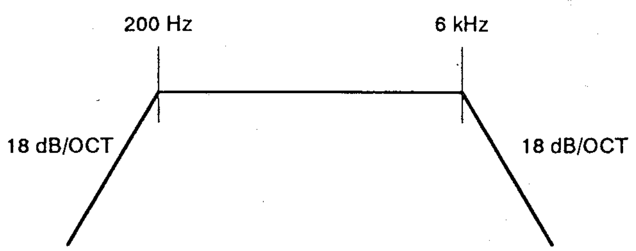


Fig. 9-45.

Checking method:

Order	Procedure
1	Input the 400 Hz, –7.5 dBs signal only to the left audio input terminal [right]. Note: Be sure to insert the shorting plug to the terminal of non-signal input.
2	Record the signal.
3	Remove the input signal, and playback the recorded section.
4	Check that the 400Hz signal level of the left audio output terminal [right] is –7.5 ± 2.5dBs, and that the distortion rate is below 0.8% (Note 2).

7. Separation check

Purpose : Separation check

Mode	Self recording/playback
Signal	No signal: Left audio input terminal [right] 400 kHz, –7.5 dBs: Right audio input terminal [left]
Measurement Point	Left audio output terminal [right]
Measuring Instrument	Audio level meter (wide Band)
Specified Value	Below -27.5 dBs

Note: The [ ] contains points to be measured when checking the right channel.

Checking method:

Order	Procedure
1	Insert a shorting plug into the left audio input terminal [right], and input a 1 kHz, –7.5 dBs signal only to the right audio input terminal [left].
2	Record the signal.
3	Remove the input signal.
4	Play back the recorded section.
5	Check that the cross talk level (1 kHz) of the left audio output terminal [right] is below –27.5 dBs.

8. Over all noise level check

Purpose : Noise level check

Mode	Self record/playback
Signal	No signal: Left and right audio output terminals
Measurement Point	Left audio output terminal [right]
Measuring Instrument	Audio level meter (Use an IHF-A curve auditory correction filter)
Specified Value	Below –62.5 dBs

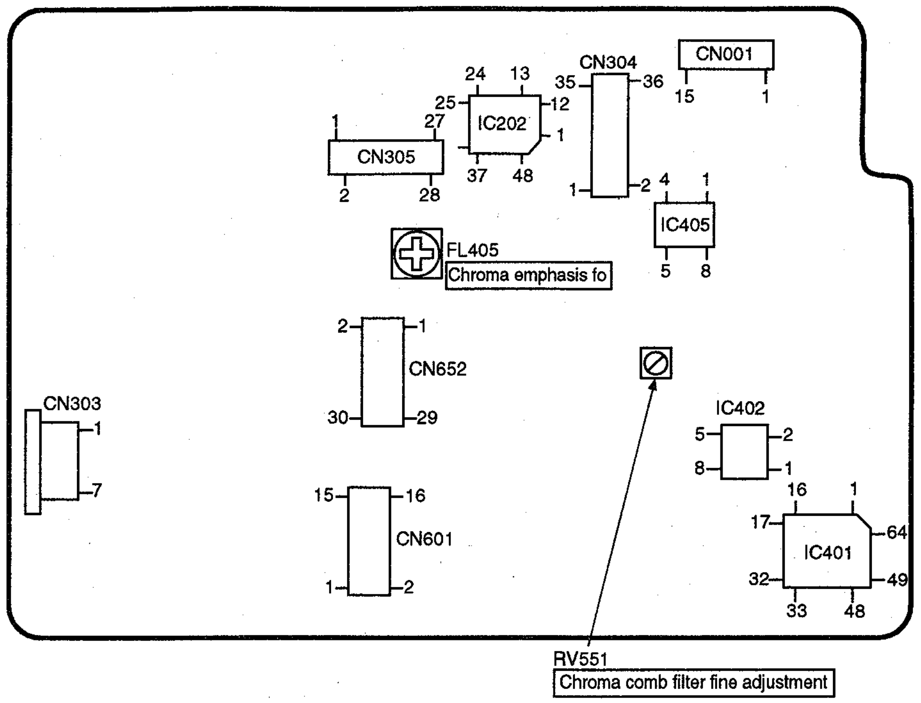
Note: The [ ] contains points to be measured when checking the right channel.

Checking method:

Order	Procedure
1	Insert the shorting plug to both the left and right audio input terminals.
2	Record.
3	Remove the shorting plug.
4	Play back the recorded section.
5	Check that the noise level of the left audio output terminal [right] is below –62.5 dBs.

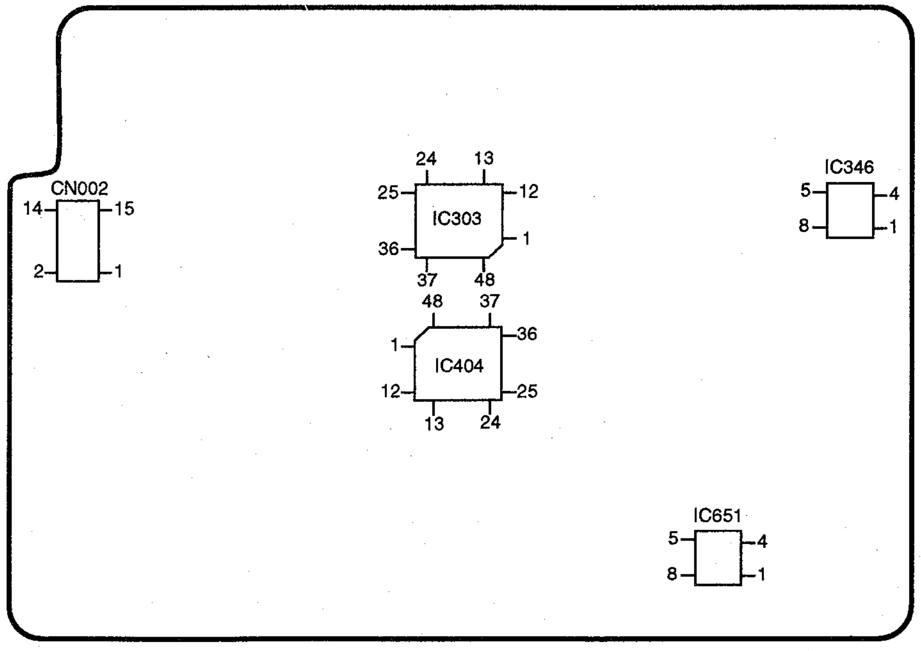
9-8. ARRANGEMENT DIAGRAM FOR ADJUSTMENT PARTS

VC-137P BOARD A SIDE



CN305
1
27
2
28
IC202
24
13
25
12
1
37
48
CN304
35
36
1
2
CN001
15
1
IC405
4
1
5
8
FL405
Chroma emphasis fo
CN652
2
1
30
29
CN303
1
7
CN601
15
16
1
2
IC402
5
2
8
1
IC401
16
1
17
64
32
49
33
48
RV551
Chroma comb filter fine adjustment

VC-137P BOARD B SIDE



CN002
14
15
2
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IC303
24
13
25
12
36
1
37
48
IC404
48
37
1
36
12
25
13
24
IC346
5
4
8
1
IC651
5
4
8
1

l [right]

al [left]

[right]

and)

checking

input

dBs signal

ft].

f the left

27.5 dBs.

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[right]

ory

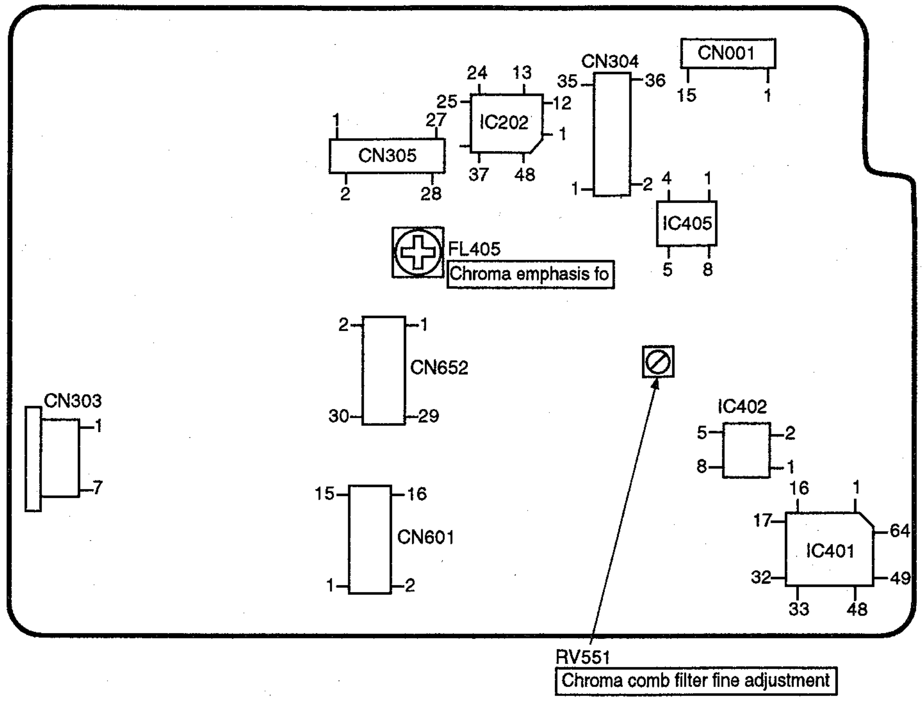
checking

nd right

lio output

9-8. ARRANGEMENT DIAGRAM FOR ADJUSTMENT PARTS

VC-137P BOARD A SIDE


CN001
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1
CN304
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36
1
2
24
13
25
27
12
1
IC202
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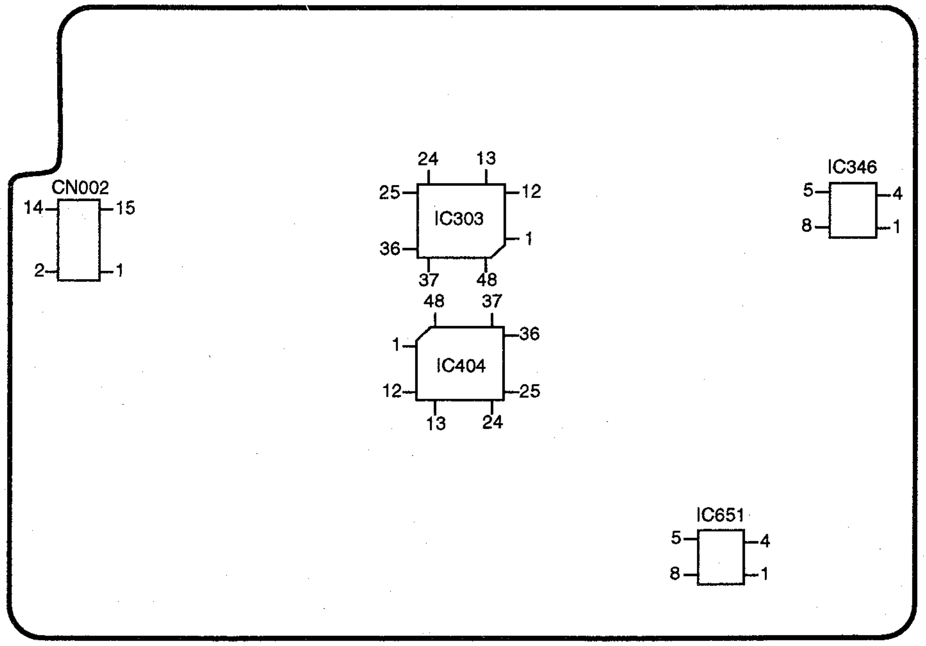
CN305
2
28
4
1
IC405
5
8
FL405
Chroma emphasis fo
2
1
CN652
30
29
CN303
1
7
15
16
CN601
1
2
IC402
5
2
8
1
16
1
17
64
IC401
32
49
33
48
RV551
Chroma comb filter fine adjustment

VC-137P BOARD B SIDE


CN002
14
15
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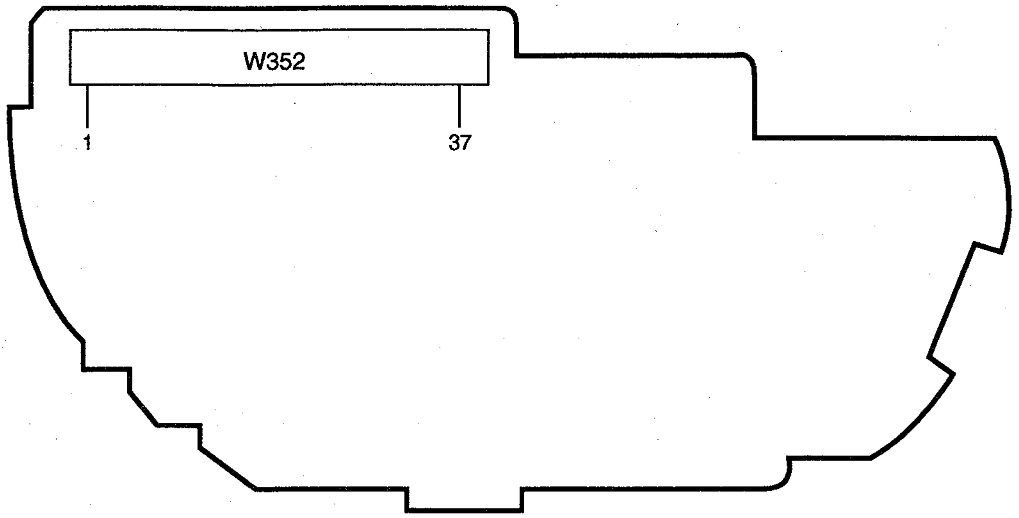
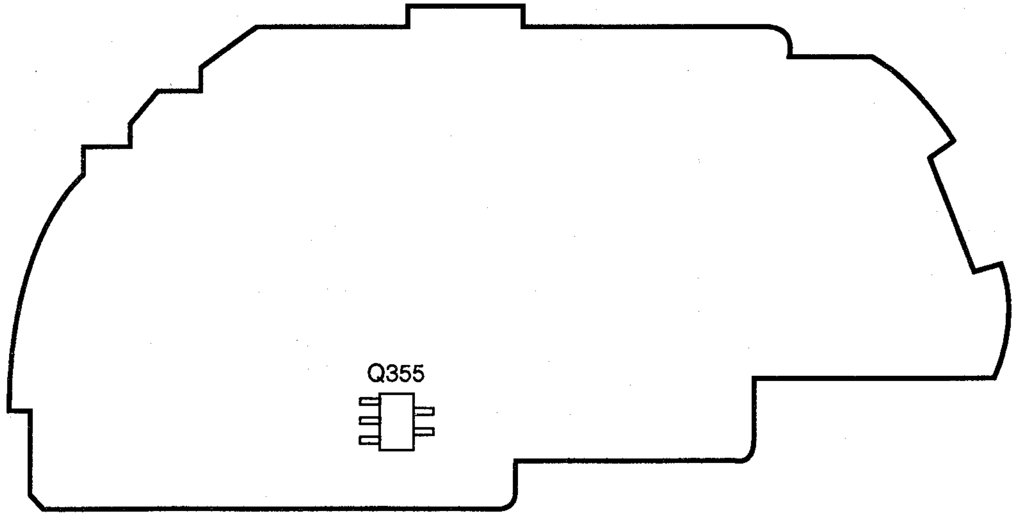
1
24
13
25
12
IC303
36
1
37
48
48
37
1
36
IC404
12
25
13
24
IC346
5
4
8
1
IC651
5
4
8
1

DV-25P BOARD A SIDE



DV-25P BOARD B SIDE

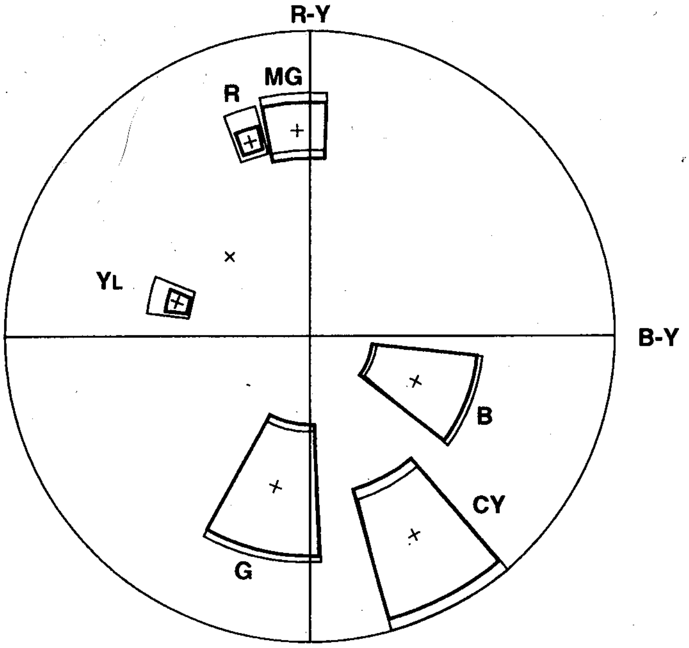


FOR CAMERA COLOR REPRODUCTION ADJUSTMENT

CCD-TR3E

⊞:WEIGHT OFF MODE

☐:WEIGHT ON MODE



R-Y
MG
R
YL
B-Y
B
CY
G

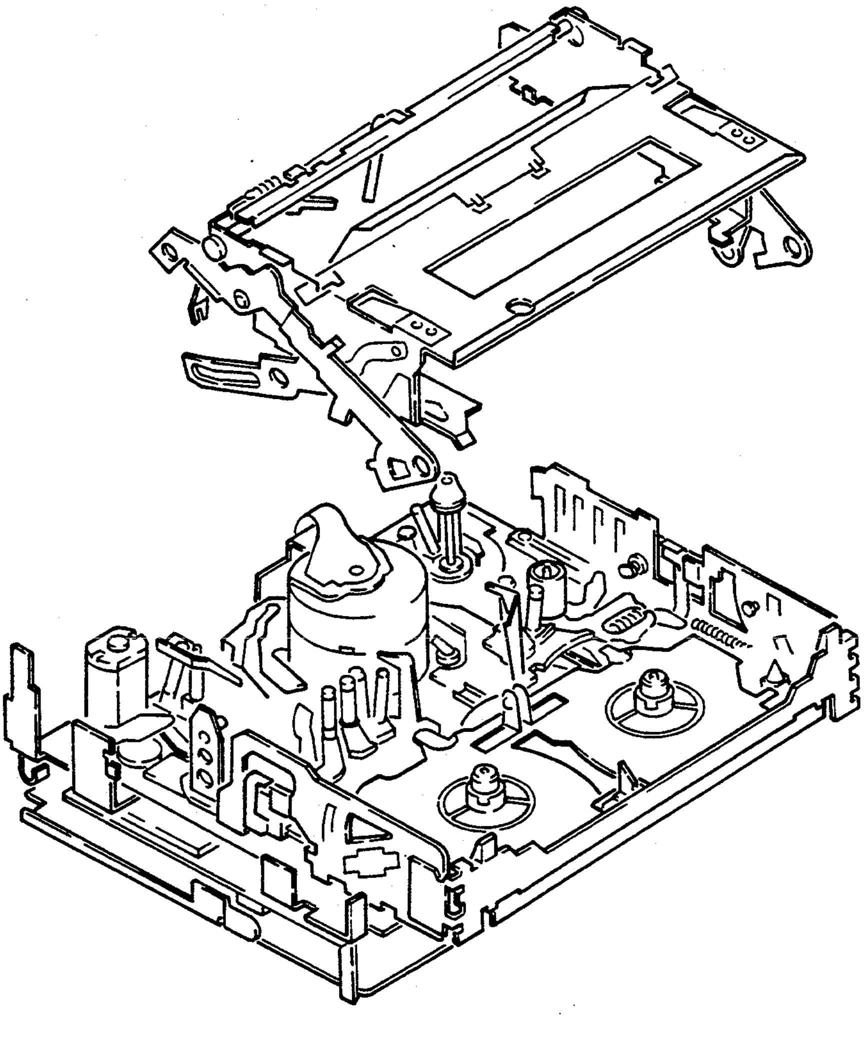
8mm Video MECHANICAL ADJUSTMENT MANUAL II

FL MECHANISM (Q MECHANISM)

Video 8

File with the SERVICE MANUAL

V13056



8 VIDEO RECORDER

SONY®

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1. PREPARATION FOR MECHANICAL CHECK, ADJUSTMENT AND MAINTENANCE

For removal of the cabinet and boards, refer to "Disassembly" in each Service Manual.

Mechanical adjustment is done in the USE mode. (To select the USE mode, refer to "1-4 Handling of Mode Selector".)

1-1 CASSETTE COMPARTMENT HOLDER ASSEMBLY (Fig. 1)

1. Removal

1) Select the USE mode.
2) Remove the screw ❶, and then, the LS support ❷.
3) Remove the four screws ❸, and then, the LS frame assy ❹.
4) Remove the three lock washers ❺, and then, the washer ❻, bar, joint ❼, T protector assy ❽, and TP arm assy ❾ in that order.
5) Remove the two screws❿, and then, the two arm shafts A⓫.
6) Remove the shaft through the long hole⓬. With the cassette compartment holder assembly⓭rotated in a direction of the arrowⒶ, remove the long holes⓮and⓯from the shaft in that order, and then, remove the cassette compartment holder assembly⓭.
7) Slide the BS holder⓰in a direction of the arrowⒷ as shown in Fig. A and remove it in a direction of the arrowⒸ.

Note : When this is done, be careful not to drop the steel ball and spring, compression out of the BS holder ⓰.

2. Mounting

1) Select the USE mode.
2) Mount the BS holder⓰in the reverse order of its removal. Note : Refer to Fig. A.
3) Mount the shafts in the order of the long holes ⓯, ⓮and⓬ of the cassette compartment holder assembly⓭, respectively.

Note : When this is done, rotate the cassette compartment holder assembly⓭in a direction of the arrowⒶ to mount it until the long hole is aligned with the oval shape of the shaft.

4) Align the oval shape of the two arm shafts A⓫with the long holes of the LS chassis, fit them in firmly and fix with the two screws❿.
5) Mount the TP arm assy ❾, T protector assy ❽ and bar, joint ❼, respectively. Then, mount the washer ❻ and three lock washers ❺.
6) Mount the LS frame assy ❹ to the chassis and fix with the four screws ❸.
7) Mount the LS support ❷ to the chassis and fix with the screw ❶.

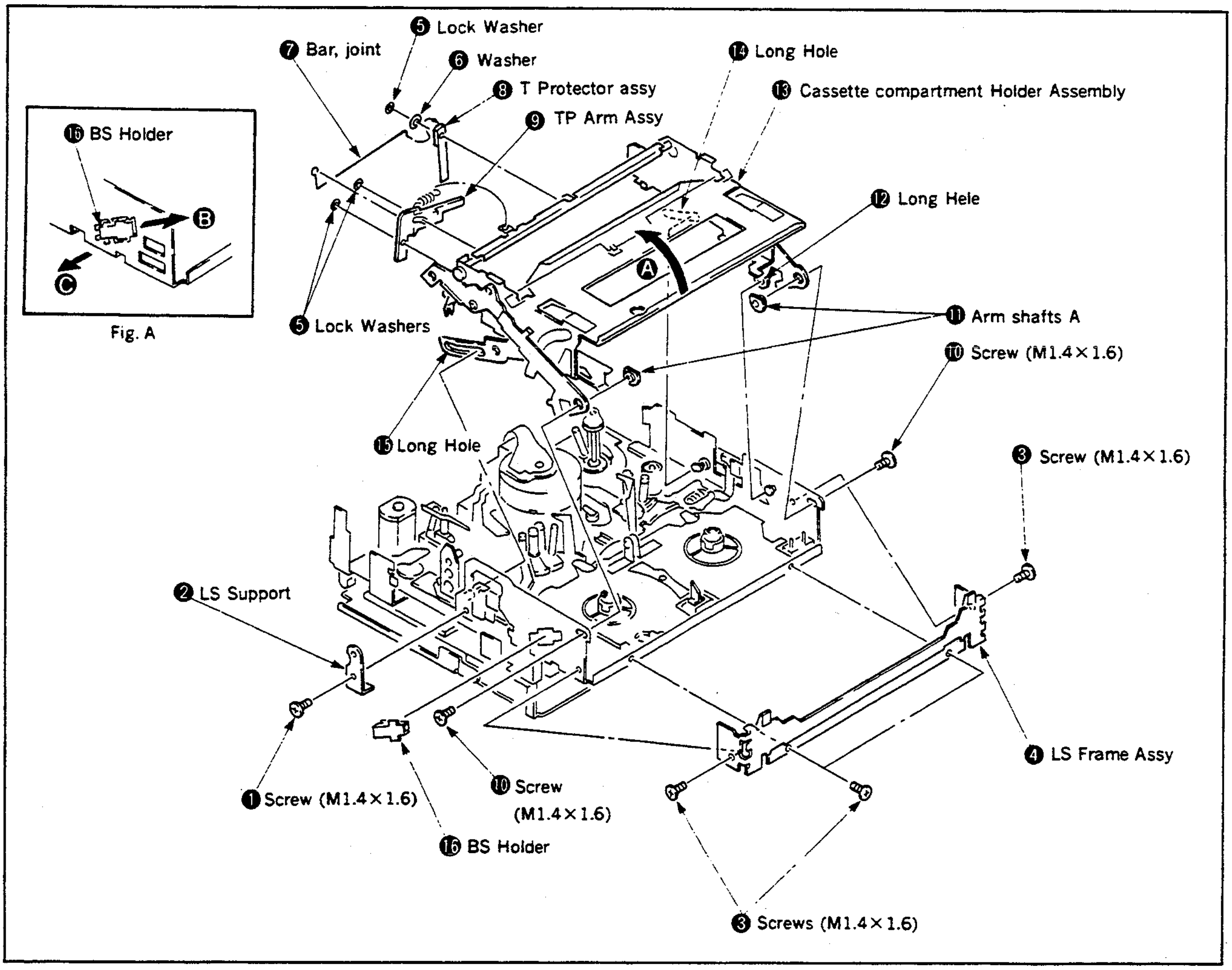

⓰ BS Holder
Ⓑ
Ⓒ
Fig. A
❺ Lock Washer
❼ Bar, joint
❻ Washer
❽ T Protector assy
❾ TP Arm Assy
⓮ Long Hole
⓭ Cassette compartment Holder Assembly
⓬ Long Hele
Ⓐ
❺ Lock Washers
⓫ Arm shafts A
❿ Screw (M1.4×1.6)
⓯ Long Hole
❸ Screw (M1.4×1.6)
❷ LS Support
❹ LS Frame Assy
❶ Screw (M1.4×1.6)
❿ Screw (M1.4×1.6)
⓰ BS Holder
❸ Screws (M1.4×1.6)

Fig. 1

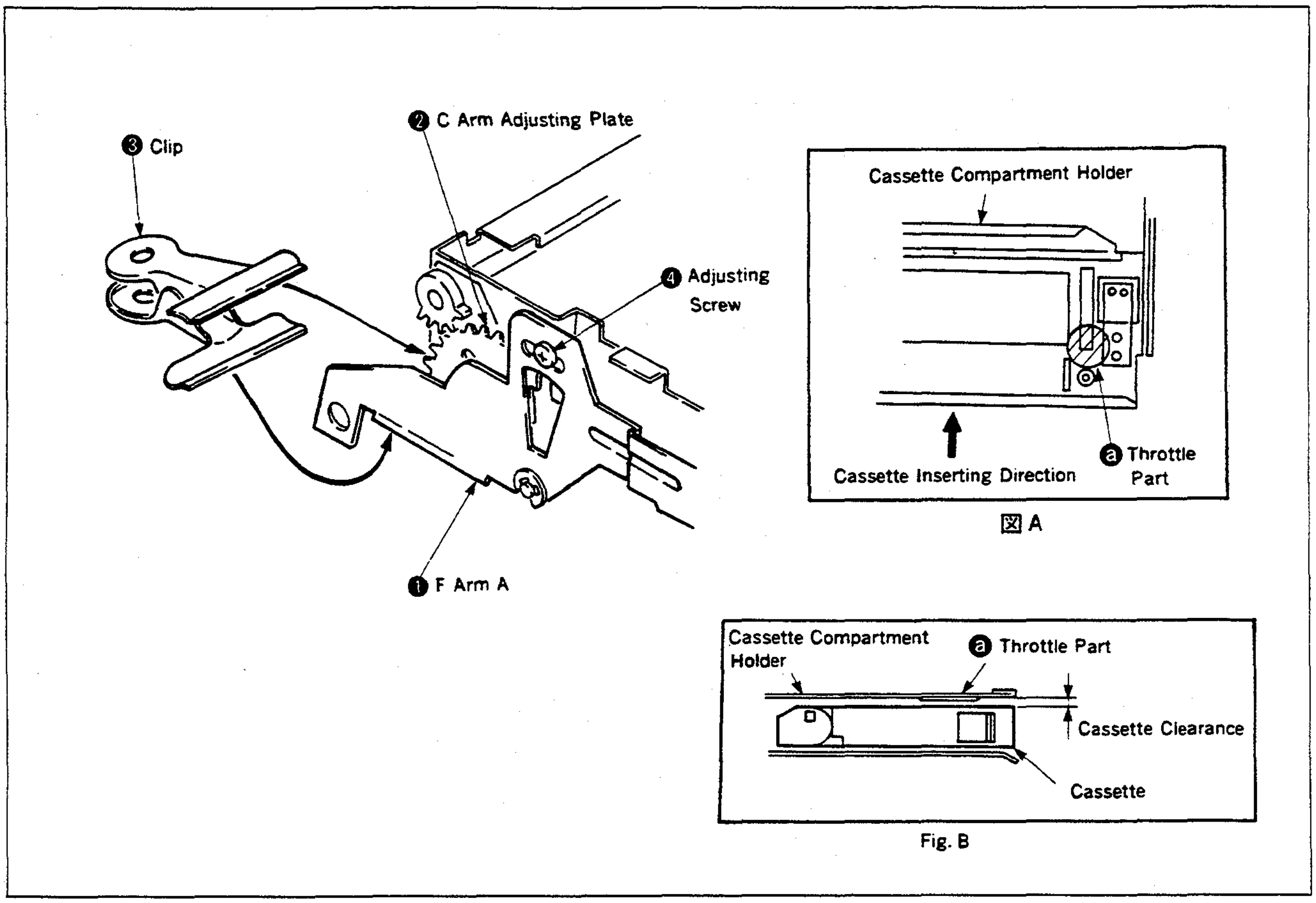
1-2 CASSETTE COMPARTMENT LOCK HEIGHT ADJUSTMENT (Fig. 2)

1) Using a spacer, etc., insert a 15.3mm-thick cassette to lock the cassette compartment.

Note : As shown in Fig. A, a 15.3mm-thick portion may be under the throttle part ⓐ.

2) Pressing the part ⓐ, nip the F arm A ❶ and the first tooth of the C arm adjusting plate ❷ with the clip ❸, and tighten the adjusting screw ❹ at a torque of 1kg•cm.

3) Apply Screw Lock to the adjusting screw ❹ after making sure of the following clearances between the throttle part ⓐ of the cassette compartment holder and the cassette as shown in Fig. B.
   - For 15mm-thick dummy cassette : 0.5 – 0.9
   - For 15.2mm-thick dummy cassette : 0.3 – 0.7


❸ Clip
❷ C Arm Adjusting Plate
❹ Adjusting Screw
❶ F Arm A
Cassette Compartment Holder
Cassette Inserting Direction
ⓐ Throttle Part
Cassette Compartment Holder
ⓐ Throttle Part
Cassette Clearance
Cassette

図A

Fig. B

Fig. 2

1-3 OPERATION WITH CASSETTE COMPARTMENT HOLDER ASSEMBLY REMOVED

1. Putting into Loading state (Fig. 3)

1) Referring to the Service Manual, supply power with the cabinet and camera section removed. (Make the mechanism deck ready to operate.)
2) Place the cap ❷ on the LED assembly ❶.
3) Press the pin of the push switch ❸ (ON state) and fix it with adhesive tape ❹ in that state.
4) Press the locking plate release arm ❺ in an arrow direction. The set is made ready for loading.

2. Putting into the REC Mode

1) Short the TEST pins (SS-82 board CN404 pins ❷ and ❹ for CCD-V11/V88) to place into the TEST mode.

For CCD-V11/V88 ; SS-82 board CN404
TEST pin connector

4	GND
3	$\overline{\text{CAM ADJ}}$
2	$\overline{\text{TEST}}$
1	$\overline{\text{PATH}}$

The set is placed into the TEST mode by shorting the pins ❷ and ❹.

2) After completing the step 1), set the power switch to VTR (or CAMERA).
3) Turn on the REC switch. (If the set is placed in the TEST mode, detection of S and T reel table rotation is disabled and the tape can run.)

3. Putting into EJECT

1) Turn on the EJECT switch.

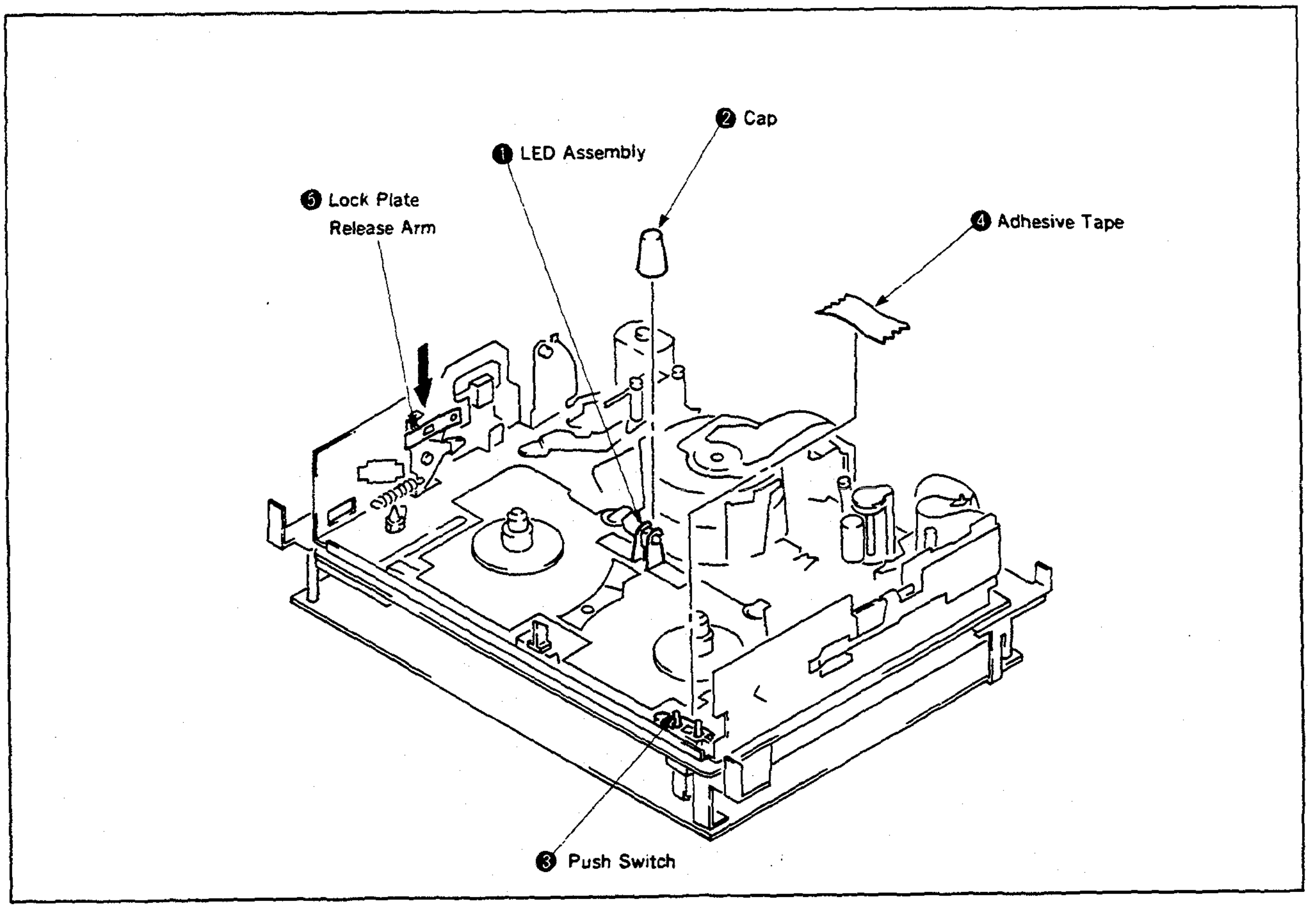


Fig. 3

1-4 HANDLING OF MODE SELECTOR

- Mount the MODE SELECTOR III panel to the mode selector. U, FL, O and O′ mechanisms have different mode indications respectively. Select your disired type. (Fig. 4)

1. Construction (Fig. 5)

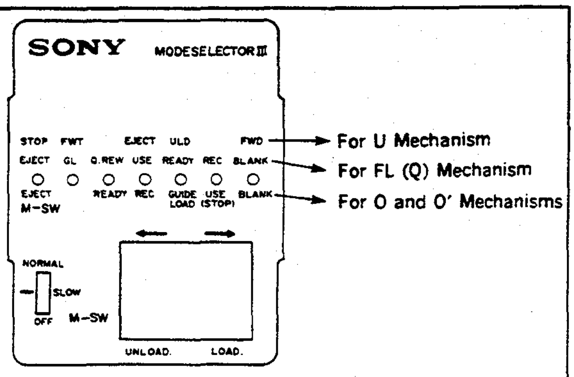
2. Connection (Fig. 6)

For CCD-VII/V88

1) Remove the plate, ornamental ❶.
2) Remove the screw ❷, and then, the LB-12 board ❸.
3) Remove the FP-114 flexible connector ❹ and loading motor connector ❺, and insert them into the MODE SELECTOR III conversion connector respectively.
4) Insert the M-SW connector of the mode selector into the MODE SELECTOR III conversion connector.

3. Handling

1) Use the M mode selector buttons only.
2) During mode selection, "BLANK" lights up when no mode is being selected.
3) If the right M mode selector button is kept pressed, EJECT, USE, GL, Q.REW, GL, REC and READY light up in that order.
4) When changing over from the READY mode back to the EJECT mode, press the left M mode selector button to select your desired mode.


SONY
MODESELECTOR III
STOP FWT EJECT ULD FWD
EJECT GL Q.REW USE READY REC BLANK
EJECT READY REC GUIDE LOAD USE (STOP) BLANK
M-SW
For U Mechanism
For FL (Q) Mechanism
For O and O′ Mechanisms
NORMAL
SLOW
OFF
M-SW
UNLOAD.
LOAD.

Ref. No. J-13 MODE SELECTOR III Panel

Fig. 4

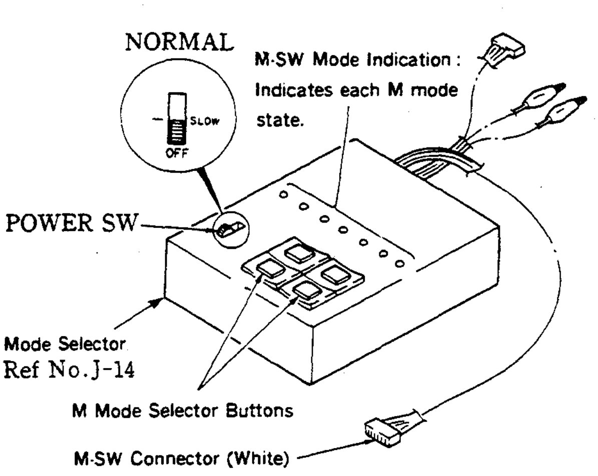

NORMAL
SLOW
OFF
M-SW Mode Indication : Indicates each M mode state.
POWER SW
Mode Selector
Ref No.J-14
M Mode Selector Buttons
M-SW Connector (White)

Fig. 5

For CCD-V11/V88

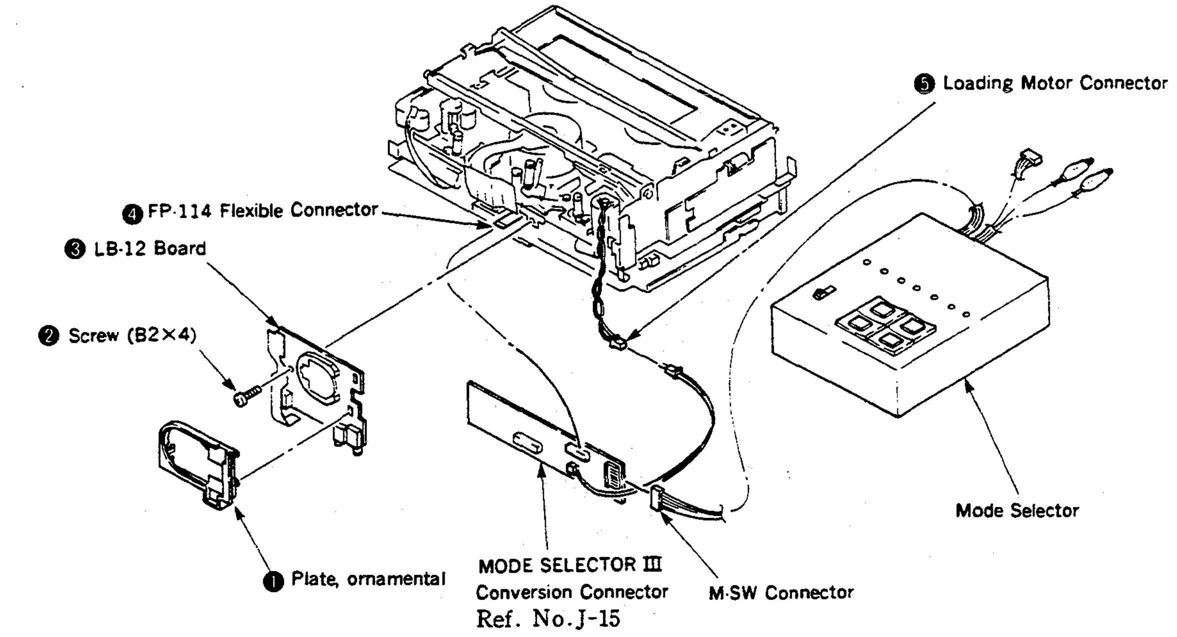
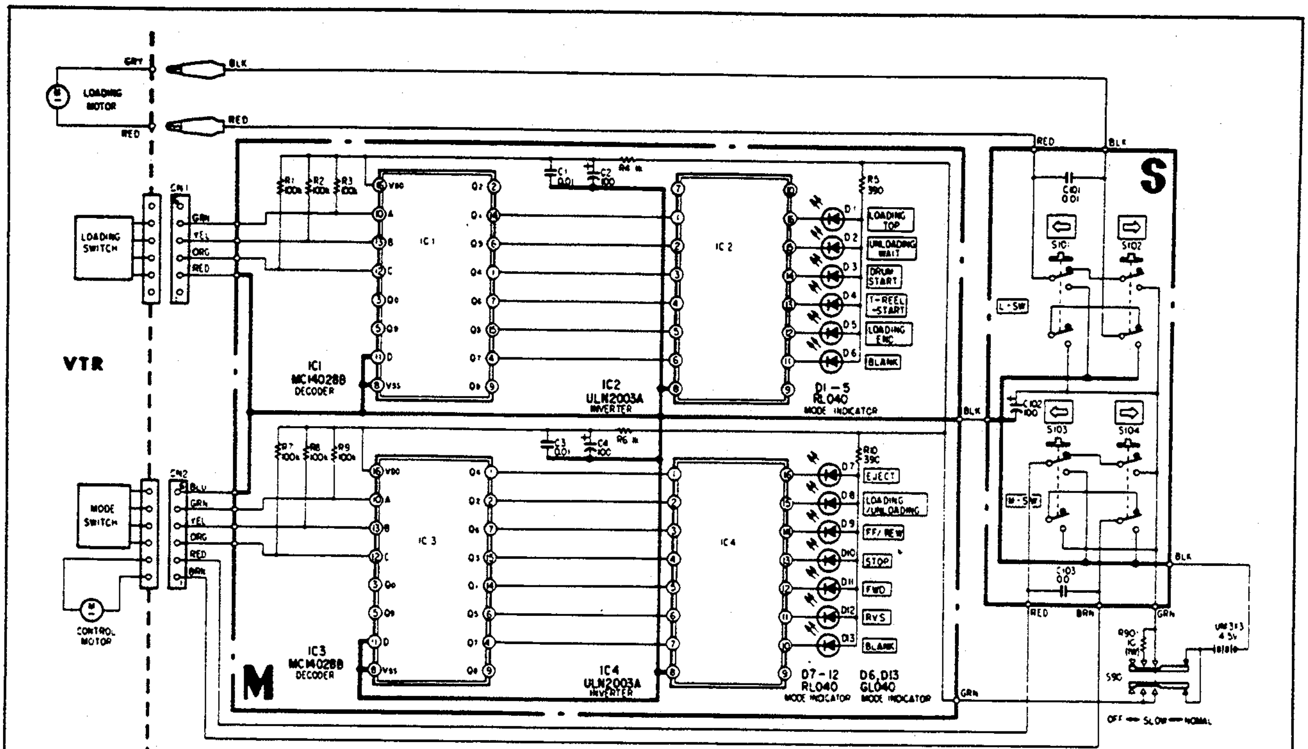

❺ Loading Motor Connector
❹ FP-114 Flexible Connector
❸ LB-12 Board
❷ Screw (B2×4)
❶ Plate, ornamental
MODE SELECTOR III Conversion Connector
Ref. No.J-15
M-SW Connector
Mode Selector

Fig. 6

1-5 MODE SELECTOR SCHEMATIC DIAGRAM


GRY
BLK
LOADING MOTOR
RED
CN1
LOADING SWITCH
GRN
YEL
ORG
RED
VTR
CN2
MODE SWITCH
BLU
GRN
YEL
ORG
RED
BRN
CONTROL MOTOR
R1 100k
R2 100k
R3 100k
C1 0.01
C2 100
R4 1k
R5 390
IC1
IC1 MC14028B DECODER
IC2
IC2 ULN2003A INVERTER
D1-5 RL040 MODE INDICATOR
LOADING TOP
UNLOADING WAIT
DRUM START
T-REEL -START
LOADING END
BLANK
R7 100k
R8 100k
R9 100k
C3 0.01
C4 100
R6 1k
R10 390
IC 3
IC3 MC14028B DECODER
IC4
IC4 ULN2003A INVERTER
D7-12 RL040 MODE INDICATOR
D6,D13 GL040 MODE INDICATOR
EJECT
LOADING /UNLOADING
FF/REW
STOP
FWD
RVS
BLANK
M
S
C101 0.01
S101
S102
L-SW
C102 100
S103
S104
M-SW
C103 0.01
BLK
RED
BRN
GRN
R901 10 (NF)
UM3 ×3 4.5V
S90
OFF ← SLOW ← NOMAL

M-SW (IC 3)

DECODER INPUT			MODE	LED NO
C	B	A		
0	0	0		
0	0	1	FWD	D11
0	1	0	LOADING/UNLOADING	D8
0	1	1	STOP	D10
1	0	0	EJECT	D7
1	0	1	RVS	D12
1	1	0	FF/REW	D9
1	1	1	BLANK	D13

0: INPUT LEVEL L
1 INPUT LEVEL H

L-SW (IC 1)

DECODER INPUT			MODE	LED NO
C	B	A		
0	0	0		
0	0	1	LOADING TOP	D1
0		0		
0	1	1	LOADING END	D5
1	0	0	DRUM START	D3
1	0		UNLOADING WAIT	D2
1	1	0	T-REEL-START	D4
1			BLANK	D6

SWITCH		DIRECTION OF MOTOR REVOLUTION
⇦	⇨	
OFF	OFF	STOP
ON	OFF	⇦
OFF	ON	⇨

⇦ L-SW LOADING END → LOADING TOP
M-SW RVS → EJECT

⇨ L-SW LOADING TOP → LOADING END
M-SW EJECT → RVS

1-6 MODE SELECTOR PARTS LIST

Ref. No	Part No.	Description		
		CAPACITOR		
C1	1-108-579-00	MILER	0.01μF	50V
C2	1-123-333-00	ELECT	100μF	24V
C3	1-108-579-00	MILER	0.01μF	50V
C4	1-123-333-00	ELECT	100μF	24V
C101	1-108-579-00	MILER	0.01μF	50V
C102	1-123-333-00	ELECT	100μF	24V
C103	1-108-579-00	MILER	0.01μF	50V
		DIODE		
D1	8-719-812-31	DIODE TLR123		
D2	8-719-812-31	DIODE TLR123		
D3	8-719-812-31	DIODE TLR123		
D4	8-719-812-31	DIODE TLR123		
D5	8-719-812-31	DIODE TLR123		
D6	8-719-812-33	DIODE TLG123A		
D7	8-719-812-31	DIODE TLR123		
D8	8-719-812-31	DIODE TLR123		
D9	8-719-812-31	DIODE TLR123		
D10	8-719-812-31	DIODE TLR123		
D11	8-719-812-31	DIODE TLR123		
D12	8-719-812-31	DIODE TLR123		
D13	8-719-812-33	DIODE TLG123A		

Ref. No	Part No.	Description		
		IC		
IC1	8-752-240-28	IC TC4028BP		
IC2	8-752-120-03	IC μPA2003C		
IC3	8-759-240-28	IC TC4028BP		
IC4	8-759-120-03	IC μPA2003C		
		RESISTOR		
R1	1-247-179-00	CARBON	100K	1/4W
R2	1-247-179-00	CARBON	100K	1/4W
R3	1-247-179-00	CARBON	100K	1/4W
R4	1-247-131-00	CARBON	1K	1/4W
R5	1-247-121-00	CARBON	390	1/4W
R6	1-247-131-00	CARBON	1K	1/4W
R7	1-247-179-00	CARBON	100K	1/4W
R8	1-247-179-00	CARBON	100K	1/4W
R9	1-247-179-00	CARBON	100K	1/4W
R10	1-247-121-00	CARBON	390	1/4W
R901	1-214-594-00	METAL	10	1W

2. PERIODIC CHECK AND MAINTENANCE

- Carry out the following maintenance and periodic checks in order not only to fully exhibit the functions and performance of the set, but also for the equipment and tape. After repairing, service the set as follows, regarless of the length of use.

2-1 CLEANING OF ROTARY DRUM ASSEMBLY

1) Gently apply chamois cloth (Ref. No. J-2) soaked in cleaning liquid (Ref. No. J-1) to the rotary drum assembly.
   Clean it by rotating the upper rotary drum assembly slowly counterclockwise by hand.

Note : Do not rotate the motor by power or rotate the upper rotary drum assembly clockwise by hand. Also, the head tip is highly likely to be damaged if the chamois cloth is moved in a pependicular direction to the it. Make sure to follow the instructions above for cleaning the rotary drum assembly.

2-2 CLEANING OF TAPE PATH (Fig. 7)

1) In the EJECT mode, clean the tape running system (TG-1, -2, -3, -4, -5, -6, -7, -8, -9, -10, -11, pinch roller, and capstan shaft) and the lower drum, using a superfine applicator (Ref. No. J-3) soaked in the cleaning liquid.

Note : Note that no oil or grease of each link mechanism adheres to the superfine applicator (Ref. No. J-3).

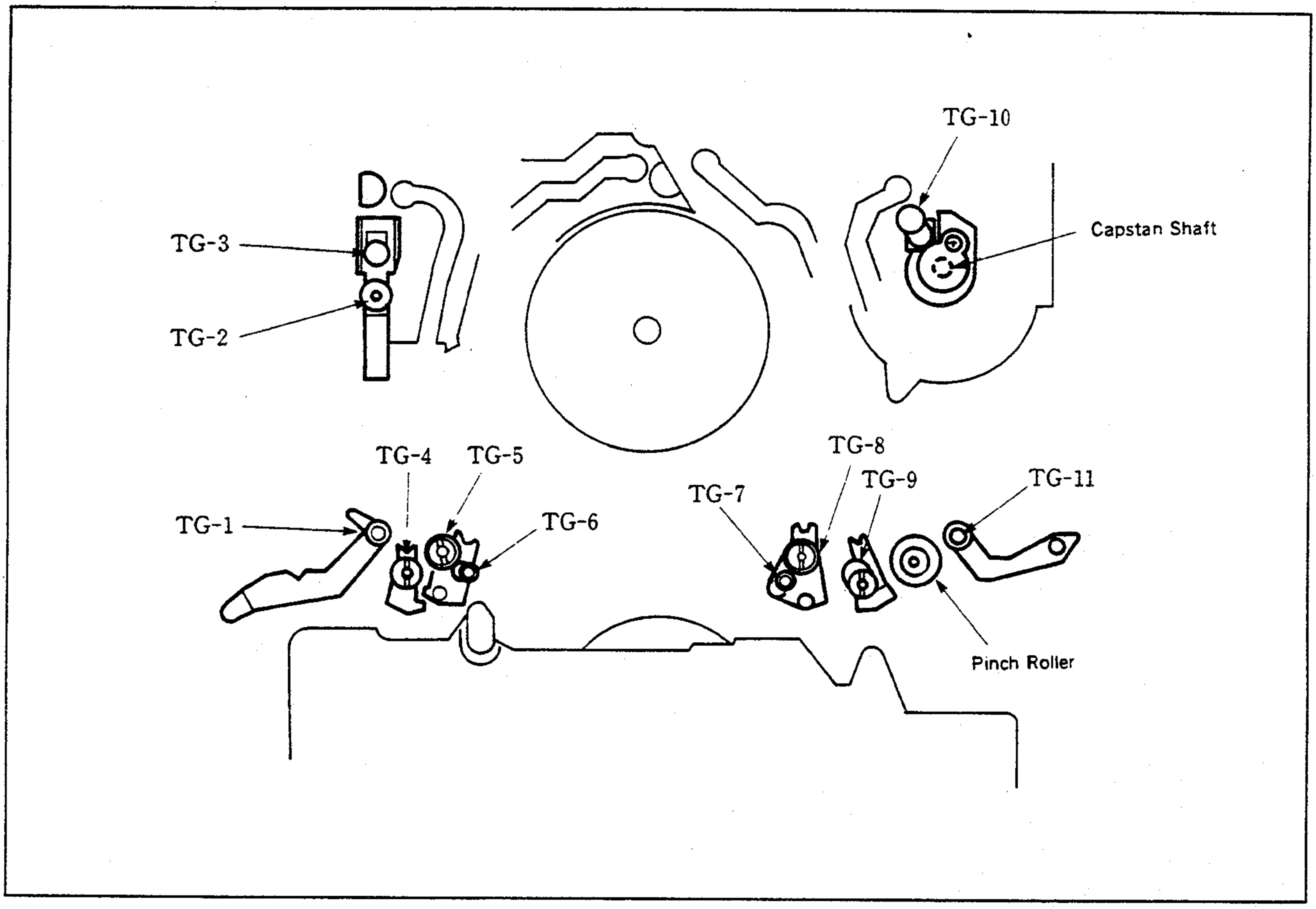


Fig. 7

2-3 PERIODIC CHECK ITEMS

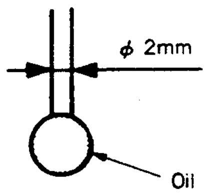
Location of Maintenance and check		Hours of Use (H)										Remarks
		500	1000	1500	2000	2500	3000	3500	4000	4500	5000	
Tape transportion System	Cleaning of tape path surface	○	○	○	○	○	○	○	○	○	○	Be careful of oil
	Cleaning and degaussing of rotary assembly	○	○	○	○	○	○	○	○	○	○	Be careful of oil
Driving System	Relay belt	—	☆	—	☆	—	☆	—	☆	—	☆	3-728-212-01
	Capstan shaft	—	◎	—	◎	—	◎	—	◎	—	◎	Be adsolutely careful not to get oil on the tape path surface.
	Relay pulley sheft	—	◎	—	◎	—	◎	—	◎	—	◎	
	Loading motor	—	☆	—	☆	—	☆	—	☆	—	☆	1-541-607-11
Performance Confirmation	Abnormal noise	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	
	Back tension measurement	—	☆	—	☆	—	☆	—	☆	—	☆	
	Brake system	—	☆	—	☆	—	☆	—	☆	—	☆	
	FWD. RVS torque measurement	—	☆	—	☆	—	☆	—	☆	—	☆	

○ : Cleaning ◎ : Oil ☆ : Confirmation

Note : When overhauling, refer to the items above to replace parts.

Note : Concerning oil

- Be sure to use specified oil. (If you use oil with different visicosity, etc., it may cause troubles.)
  Oil : Part No. 7-661-018-18 (Mitsubishi Diamond Oil Hydrofluid NT-68)
- When lubricating bearings, be sure use oil free from dust, etc. (If you use oil with dust, etc. contained, it may cause bearings to be worn out or seized.)
- A drip of oil refers to an amount attached to the tip of a φ 2mm stick shown in the right figure.

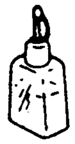


2-4 Service jigs list

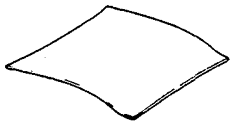
Ref. No.	Neme	Part No.	Fixture No.	Usage and Others
J-1	Cleasing fluid	Y-2031-001-0	—	
J-2	Cleasing cloth	2-034-697-00	—	
J-3	Super fine applicator (Made by NIPPON APPLICATOR, P752D)		—	
J-4	Head degausser	Widely available	—	
J-5	Small mirror for adjustment Spare mirror	J-6080-029-A J-6080-030-1	SL-5052	Tape path
J-6	Alignment tape NTSC (WR5-1N) PAL (WR5-1C)	8-967-995-01 8-967-995-06		Tape path
J-7	Dial tension gauge	J-6080-827-A		Various torque measurement
J-8	Tension measurement reel	J-6080-831-A		With ϕ30 tape
J-9	FWD and RVS winding torque cassette	J-6080-824-A	GD-2086	
J-10	Drum screwdriver (Hexagonal wrench screwdriver)	7-700-766-01		
J-11	Screwdriver for tape path	J-6082-026-A		For tape guide adjustment
J-12	Mode selector Ⅲ panel	J-6082-023-A		
J-13	Mode selector	J-6080-825-A		For all models
J-14	Mode selector Ⅲ conversion connector	J-6082-021-A		

Other equipment
- Oscilloscope
- Analog tester (20kΩ)

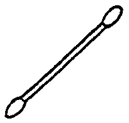
J-1



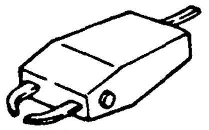
J-2



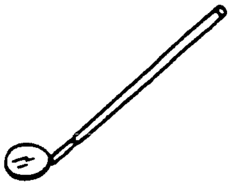
J-3



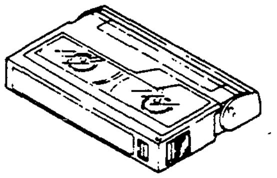
J-4



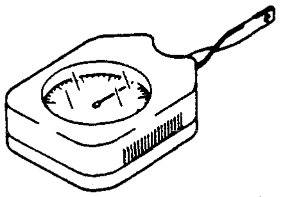
J-5



J-6



J-7



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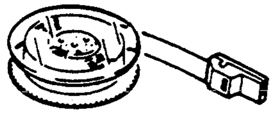

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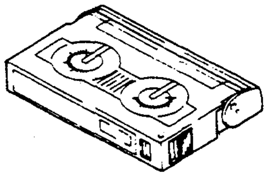

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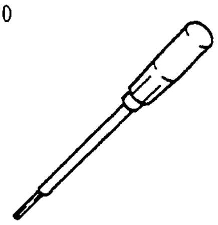
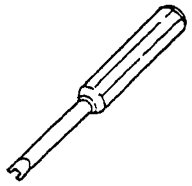
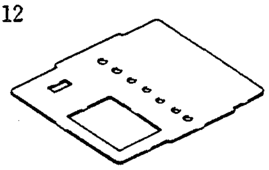


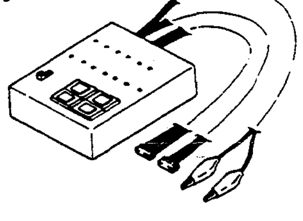
J-11



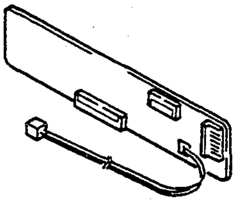
J-12



J-13



J-14



3. MECHANICAL CHECK, ADJUSTMENT AND REPLACEMENT

Note : Use the mode selector (Ref. No. J-14) for the following mechanical checks, adjustments and replacements.

Note : The modes in ☐ are those set by pressing the mode selector buttons.

3-1 LED BASE (Fig. 8)

1. Removal

1) Select the USE mode.
2) Referring to 1-1, remove the cassette compartment holder assembly.
3) As shown in Fig. A, rotate the LED in a direction of the arrow Ⓐ and remove it in a direction of the arrow Ⓑ.
4) Remove the three screws ❶, ❷ and ❸.
5) Lifting the LED base ❹, remove it by pushing it in a direction of the arrow Ⓒ.

Note : Dismount and remount the LED base carefully, because its holder is easily deformed.

2. Mounting

1) Select the USE mode.
2) Put the claw ❺ of the LED base ❹ in the notch ❼ of the LS chassis without catching the LED in between. Next, fit to the dowels ❻ at 2 places.
3) Mount and tighten the screws ❶, ❷ and ❸ in that order.
4) As shown in Fig. B, set the LED in a direction of the arrow Ⓐ and rotate it in a direction of the arrow Ⓑ to fix.
5) As shown in Fig. C. bend a flexible boord and put it in the holder.

Note : In the step2), make sure that the barring ❽ of the arm assy, gear can appears in the hole of the LED base. (Fig. D)

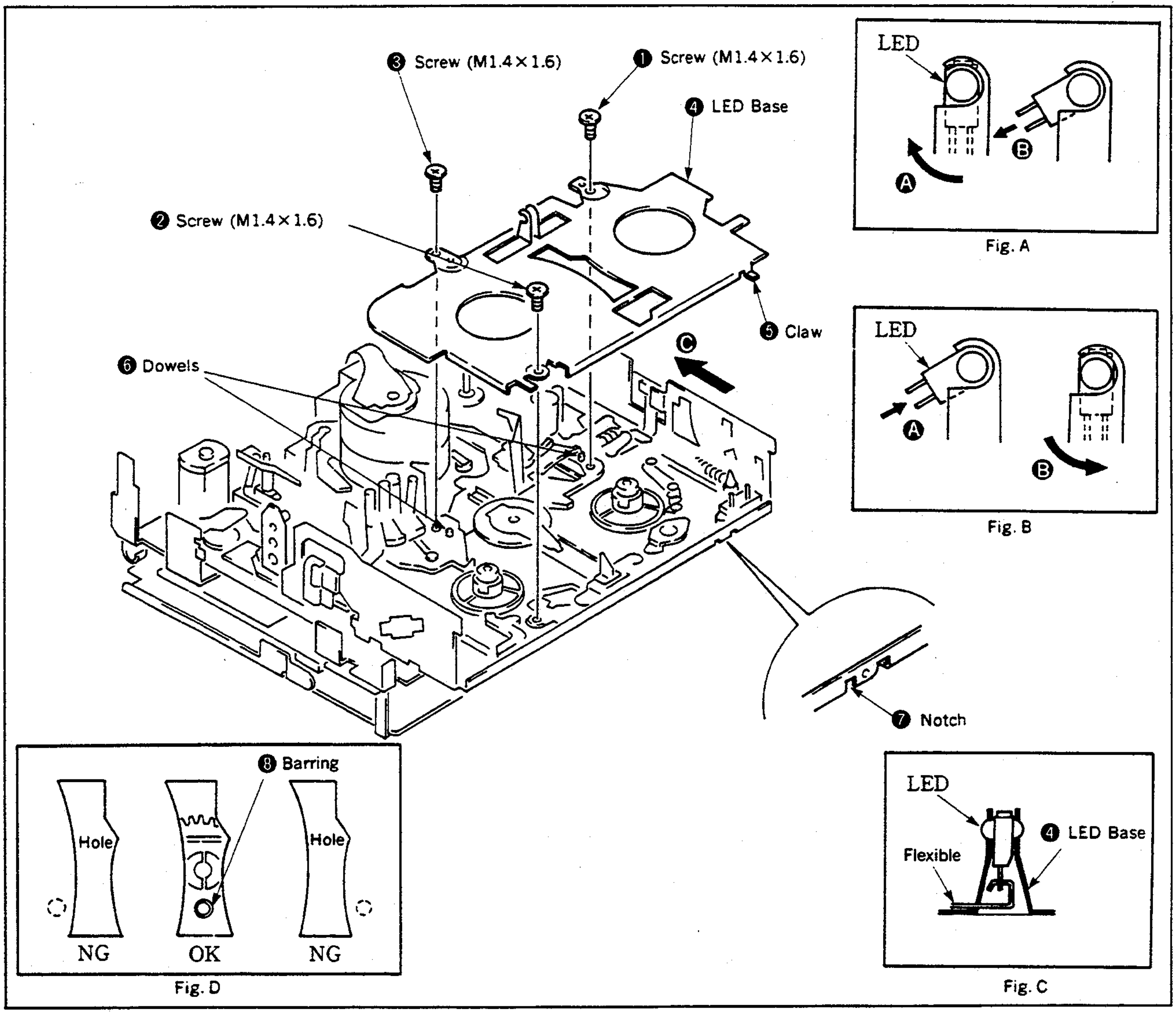

❸ Screw (M1.4×1.6)
❶ Screw (M1.4×1.6)
❹ LED Base
❷ Screw (M1.4×1.6)
❺ Claw
Ⓒ
❻ Dowels
❼ Notch
LED
Ⓐ
Ⓑ
LED
Ⓐ
Ⓑ
❽ Barring
Hole
Hole
NG
OK
NG
LED
❹ LED Base
Flexible

Fig. A

Fig. B

Fig. D

Fig. C

Fig. 8

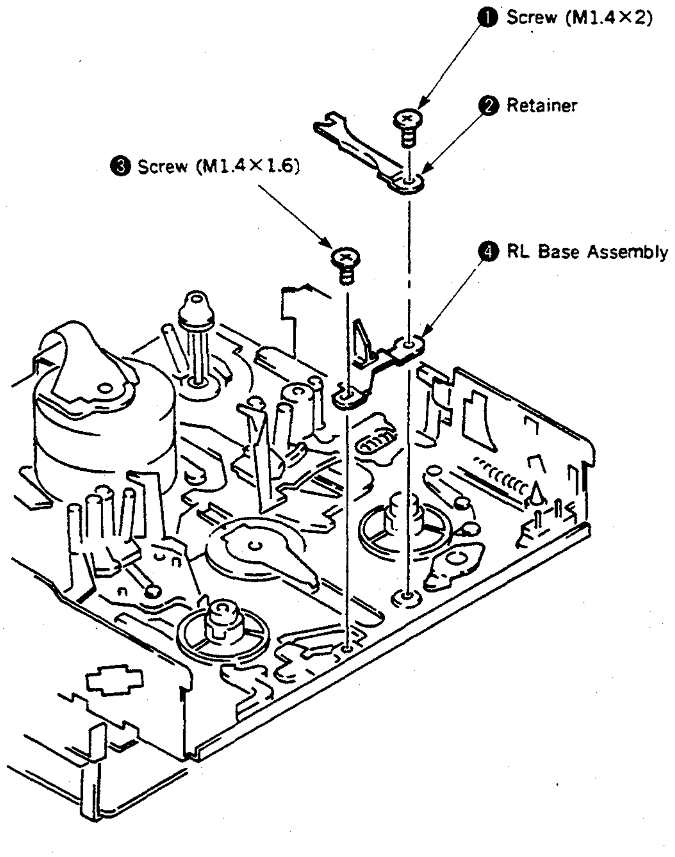
3-2 RL BASE ASSEMBLY, RETAINER (Fig. 9)

1. Removal

1) Select the USE mode.
2) Referring to 1-1, remove the cassette compartment holder assemlby.
3) Referring to 3-1, remove the LED base.
4) Remove the screw ❶, and then, retainer ❷.
5) Remove the screw ❸, and then, RL base assembly ❹.

2. Mounting

1) Select the USE mode.
2) With the screw ❸, mount the RL base assembly ❹ to the LS chassis.
3) With the screw ❶ fix the retainer ❷ to the RL base assembly ❹.
   When this is done, align the bump part ※ of the retainer ❷ with the bump part ※ of the guide rail T. (Fig. A)
4) Referring to 3-1, mount the LED base.
5) Referring to 1-1, mount the cassette compartment holder assembly.


❶ Screw (M1.4×2)
❷ Retainer
❸ Screw (M1.4×1.6)
❹ RL Base Assembly

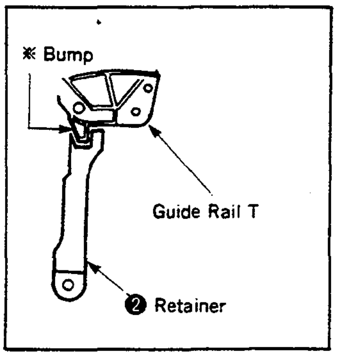

※ Bump
Guide Rail T
❷ Retainer

Fig. A

Fig. 9

3-3 TABLE ASSY, REEL, SUPPLY (Fig. 10)

1. Removal

1) Select the USE mode.
2) Referring to 1-1, remove the cassette compartment holder assembly.
3) Referring to 3-1, remove the LED base.
4) As shown in Fig. A, making use of slackness of the tension regulator string ❸ in the USE mode, remove the string out of the groove of the table assy, reel, supply ❶. When this is done, be careful not to bend the tension regulator string ❸ and the S soft arm ❹ must be moved in a direction of the arrow Ⓑ.
5) Remove the table assy, reel, supply ❶.

Note : Dismount and remount the table assy, reel, supply ❶, holding the reel claw ※.

2. Mounting

1) Select the USE mode.
2) As shown in Fig. B, move the S soft arm ❹ in a direction of the arrow Ⓑ.
3) Avoiding the tension regulator string ❸, mount the table assy, reel, supply ❶ to the shaft ❷.
4) Put the tension regulator string ❸ in the groove of the table assy, reel, supply ❶ and fit it properly by turning the table assy, reel, supply ❶.
5) Referring to 3-1, mount the LED base.
6) Referring to 1-1, mount the cassette compartment holder assembly.

Note : Do not touch the tension regulator string ❸ with naked hand. Also, be careful of adhesion of grease, etc.

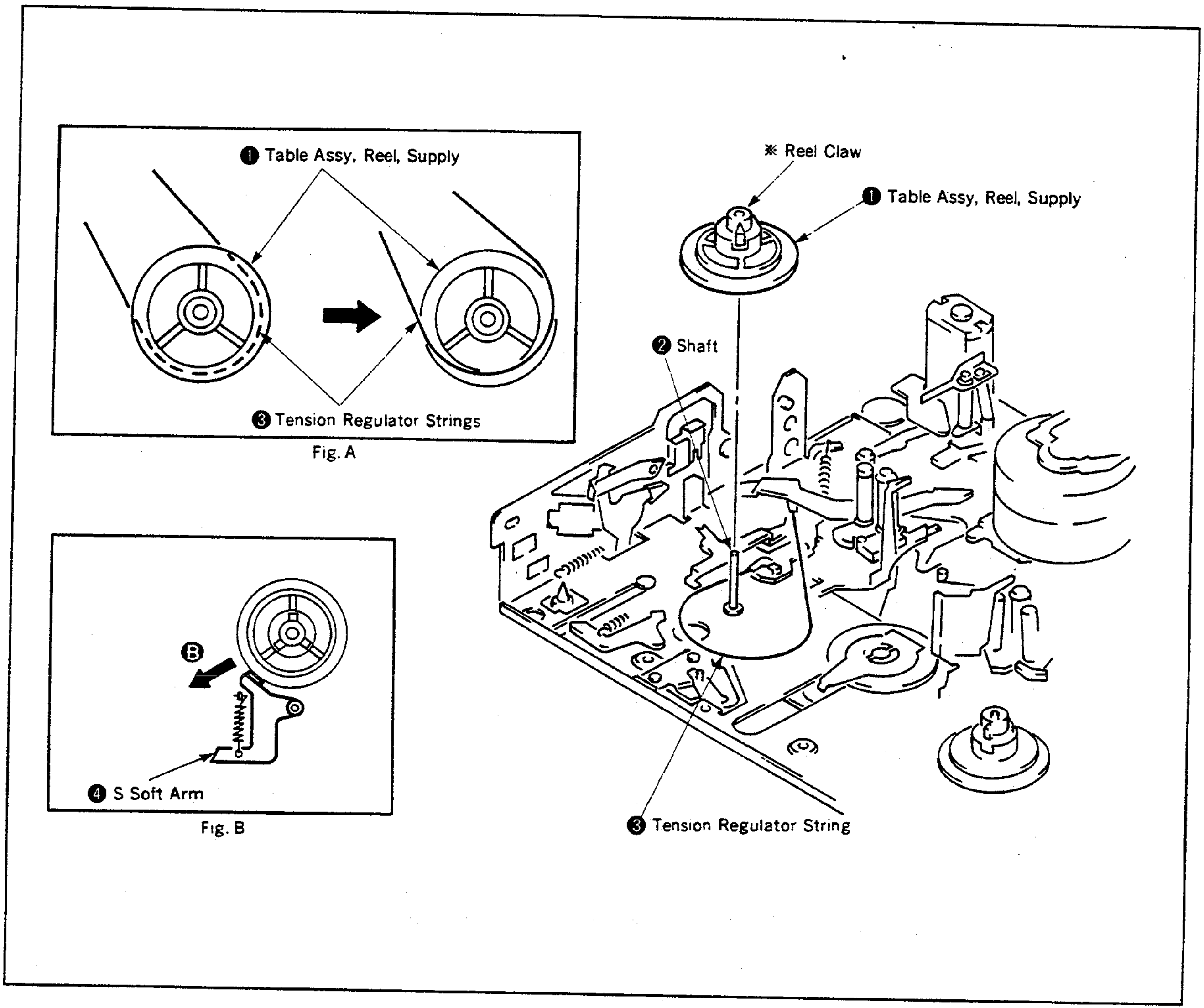

❶ Table Assy, Reel, Supply
❸ Tension Regulator Strings
Ⓑ
❹ S Soft Arm
※ Reel Claw
❶ Table Assy, Reel, Supply
❷ Shaft
❸ Tension Regulator String

Fig. A

Fig. B

Fig. 10

3-4 TABLE ASSY, REEL, TAKE-UP (Fig. 11)

1. Removal

1) Select the USE mode.
2) Referring to 1-1, remove the cassette compartment holder assembly.
3) Referring to 3-1, remove the LED base.
4) Referring to 3-2, remove the retainer.
5) Dispace the T ratchet ❶ in a direction of the arrowⒶ.
6) With the claw (T ratchet head) of the T ratchet ❶ moved in a direction of the arrowⒷ, remove the Table assy, reel, take-up ❷.

Note : Dismount and remount the Table assy, reel, take-up ❷, holding the reel claw ✻.

2. Mounting

1) Select the USE mode.
2) With the claw (T ratchet head) of the T ratchet ❶ moved in an arrow direction, mount the Table assy, reel, take-up ❷ to the shaft ❸.
3) Referring to 3-2, mount the retainer.
4) Referring to 3-1, mount the LED base.
5) Referring to 1-1, mount the cassette compartment holder assembly.

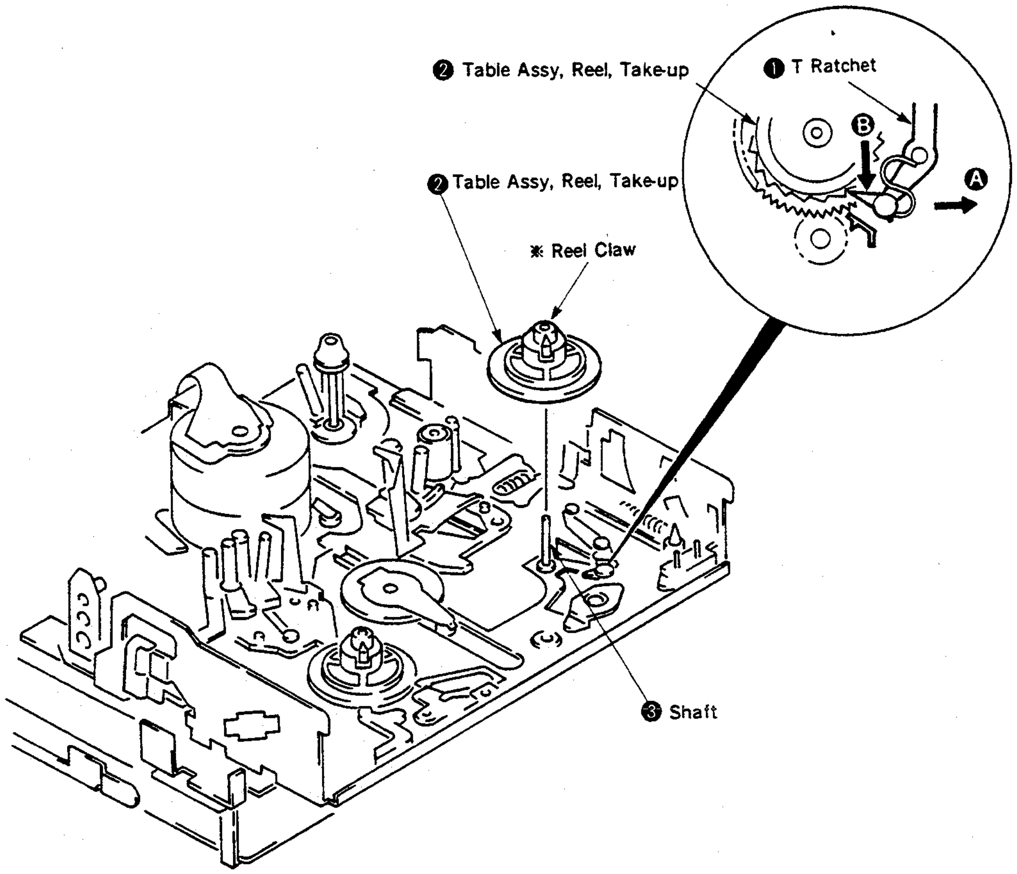


Fig. 11

3-5 ONEWAY CLUTCH ASSEMBLY (Fig. 12)

1. Removal

1) Select the USE mode.
2) Referring to the cassette compartment holder assembly.
3) Referring to 3-1, remove the LED base.
4) Remove the screw ❶, and then, oneway clutch assembly ❷.

2. Mounting

1) Select the USE mode.
2) Mount the oneway clutch assembly ❷ to the LS chassis and fix with the screw ❶.
3) Referring 3-1, mount the LED base.
4) Referring to 1-1, mount the cassette compartment holder assembly.

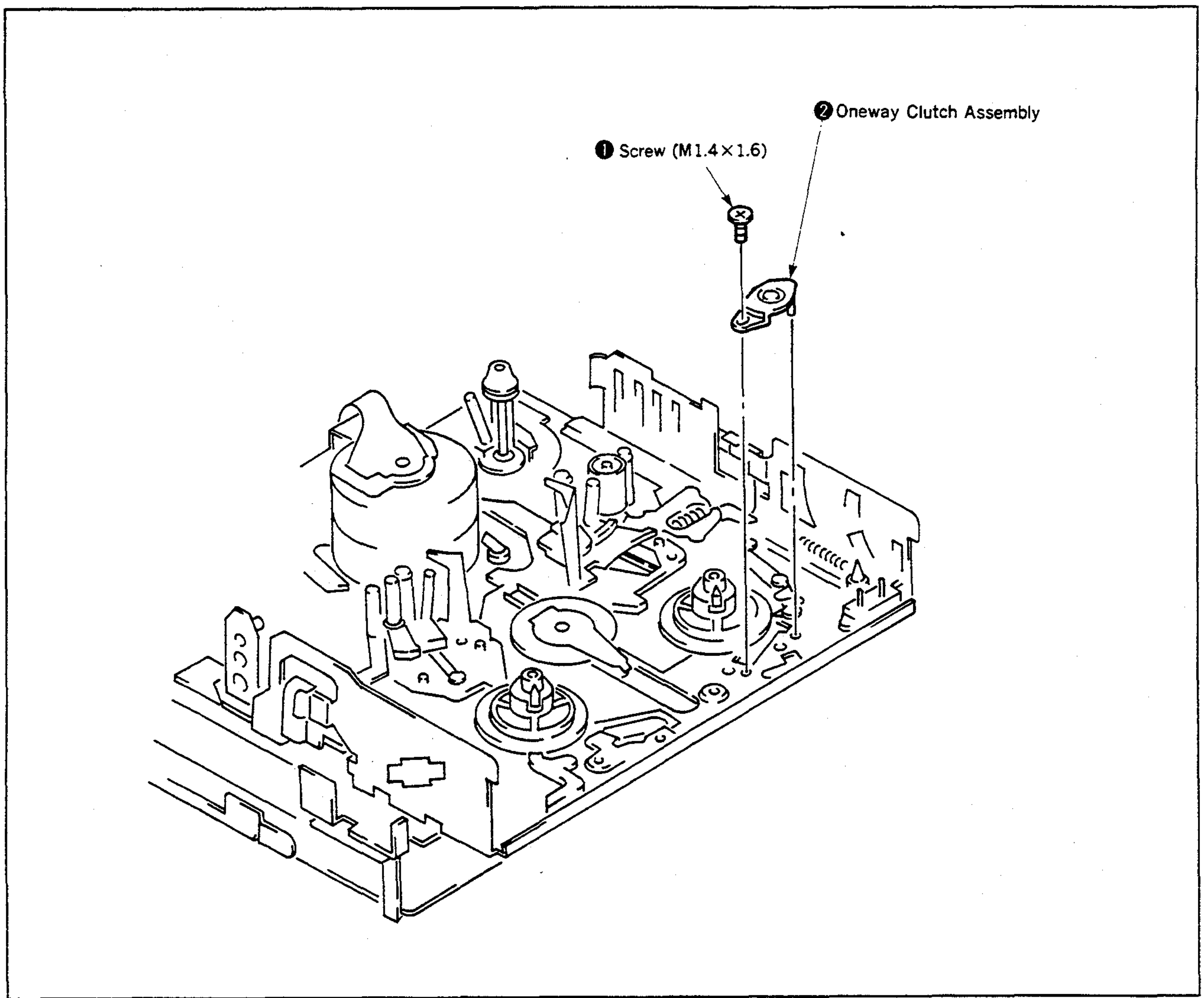


Fig. 12

3-6 S SOFT ARM ASSEMBLY (Fig. 13)

1. Removal

1) Select the USE mode.
2) Referring to 1-1, remove the cassette compartment holder assembly.
3) Referring to 3-1, remove the LED base.
4) Rerove the lock washer ❶, and then, the spring, tension ❷.
5) Remove the S soft arm assembly ❸ by rotating it in an arrow direction (until the hook ❺ comes off the LS chassis).

2. Removal

1) Select the USE mode.
2 As shoms in Fig. A, apply a quarter drip of oil to the arrowindicated part of the shaft ❹.
3) Mount the S soft arm assembly ❸ to the shaft ❹, rotating it in as arrow direction. (Be careful not to bend the hook ❺.)
4) Hook the spring, tension 2 onto the claw and fix it with lock washer 1.
5) Referring to 3-1, mount the LED base.
6) Referring to 1-1, mount the cassette compartment holder assembly.

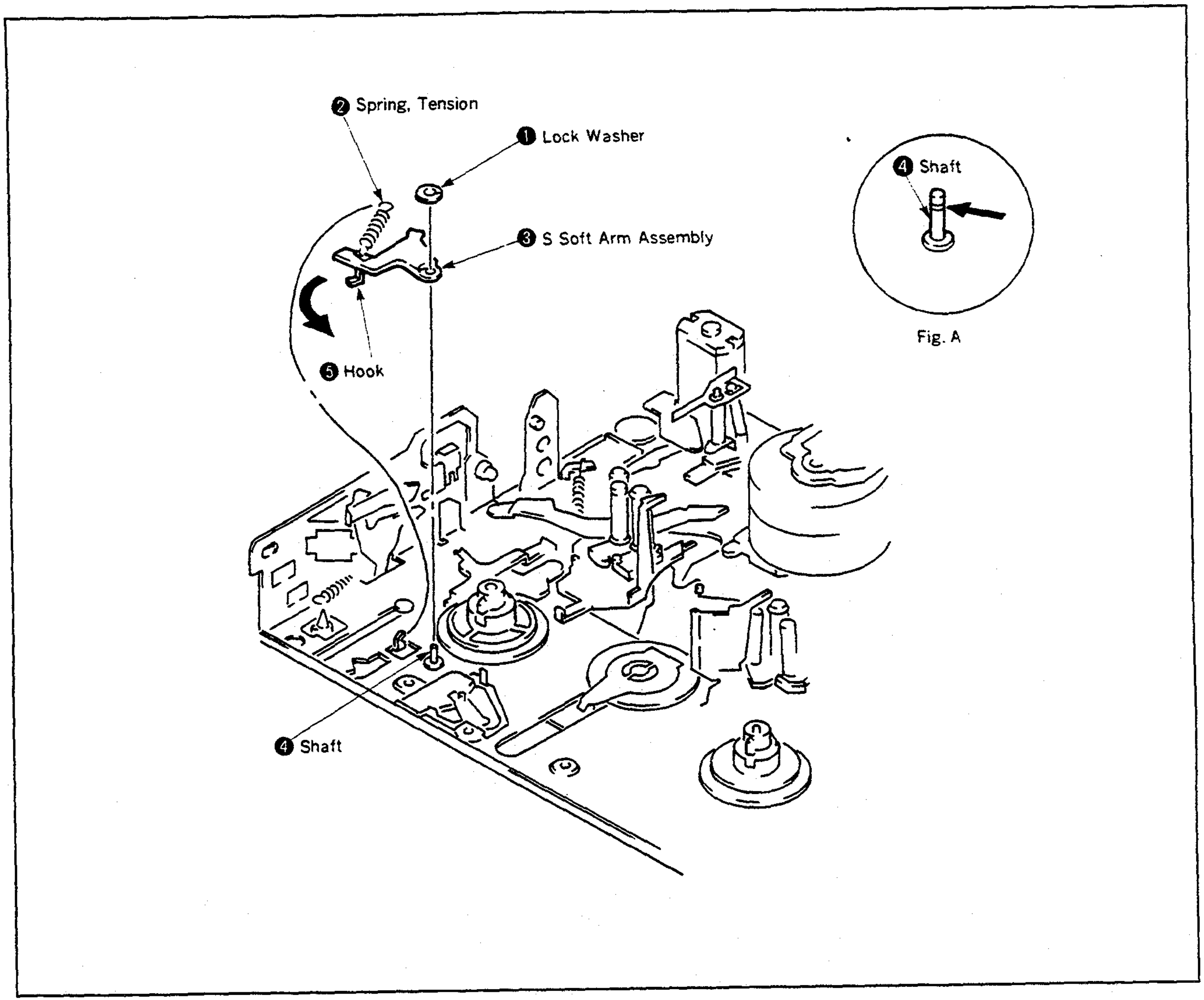


Fig. 13

3-7 LS CHASSIS ASSEMBLY (Fig. 14)

1. Removal

1) Select the USE mode.
2) Referring to 1-1, remove the cassette compartment holder.
3) Referring to 3-1, remove the LED base.
4) Referring to 3-2, remove the RL base assembly and retainer.
5) Remove the lock washer ❶, and then, arm assy gear ❷.
6) Select the Q. REW mode.
7) Remove the flexible rotary shaft ❸, and then, the flexible connector ❹.
8) Remove the E retaining ring ❺ and three screws ❻.
9) Remove the LS chassis assembly ❼ in a direction of the arrow Ⓓ.

2. Mounting

1) As shown in Fig. A, apply Molyton grease to the arrow-indicated part of the LS chassis assembly ❼.
2) Unload in the RDY mode. Start docking in the Q. REW mode after first GL. When docking the mechanical chassis and LS chassis assembly ❼, it is necessary to place the following parts at specified positions.
3) Put the pin ㉔of the pinch arm assembly ㉓into the left side of the pinch press arm assembly㉕. (Fig.19)
4) Move the TG-1 arm assembly⓯in a direction of the arrow Ⓐ to put the pin ⓰into the concave of the arm assembly ⓱. (Fig. 17)
5) put the pin⓳of the S ratchet⓲into the right side the of the arm assembly⓱. (Fig. 17)

Simultaneously performing the operations above, push the roller of the guide lock arm ❽ With the arm arc portion of the guide arm T assembly[illegible] (Fig. 15) to push the LS chassis assembly ❼ in a direction of the arrow Ⓔ, and at the same time, engage the claws of the guide rail base 1❿, guide rail base 2⓫and guide rail base3⓬with those of the guide rail S㉖ and guide rail T㉗. (Fig. 16)

Then, align the shafts ❾ of the mechanical chassis With the four long joints of the LS chassis assembly ❼, and put the LS pin㉑of the LS arm assembly⓴in the groove of the LS cam plate㉒. (Fig.18)

Note : Before docking, confirm that both EJ arm and LS arm are deeply inserted into the shafts. (If not properly fit, the set does not function even if the LS chassis is docked.

6) Mount the E retaining ring ❺ and three screws ❻.
7) Mount the flexible rotary shaft ❸ and flexible connector ❹.
8) Select the USE mode.
9) Mount the arm assy gear ❷ and fix with the lock washer ❶.
10) Referring to 3-2, mount the RL base assembly and retainer.
11) Referring to 3-1, mount the LED base.
12) Referring to 1-1, mount the cassette compartment holder assembly.

Note : Using the mode selector, confirm that loading and unloading are performed smoothly.

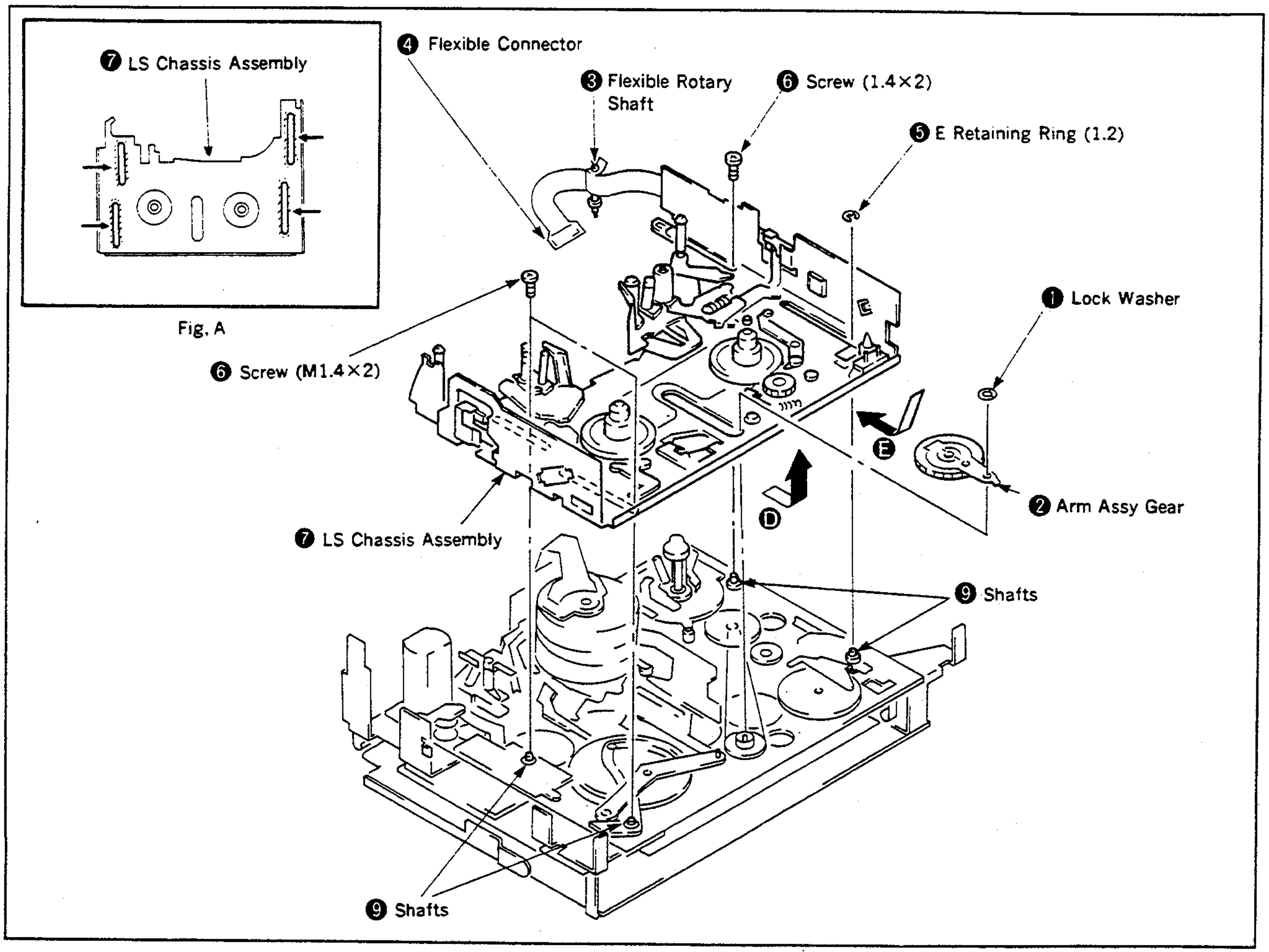


Fig. 14

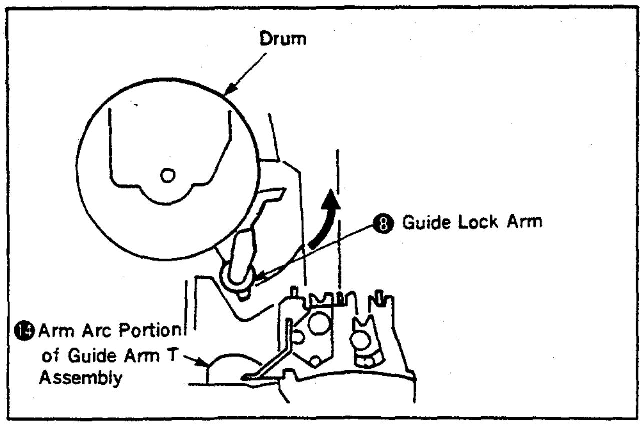

Drum
⑧ Guide Lock Arm
⑭ Arm Arc Portion of Guide Arm T Assembly

Fig. 15

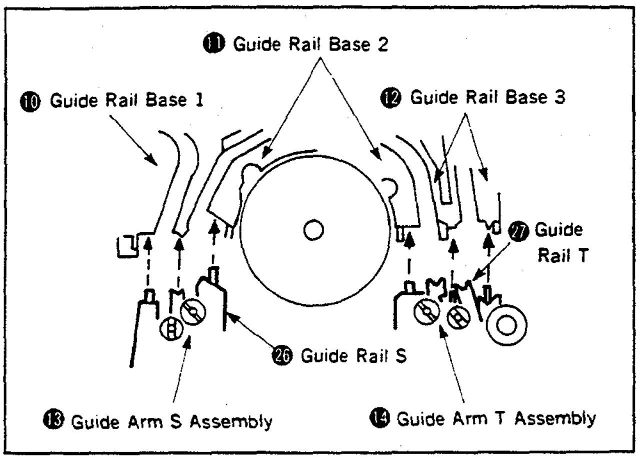

⑪ Guide Rail Base 2
⑩ Guide Rail Base 1
⑫ Guide Rail Base 3
㉗ Guide Rail T
㉖ Guide Rail S
⑬ Guide Arm S Assembly
⑭ Guide Arm T Assembly

Fig. 16

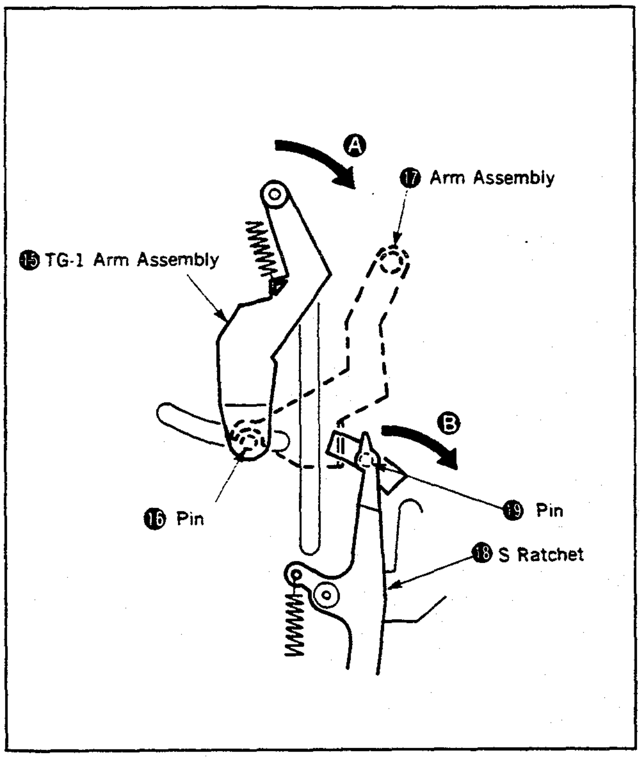

Ⓐ
⑰ Arm Assembly
⑮ TG-1 Arm Assembly
Ⓑ
⑯ Pin
⑲ Pin
⑱ S Ratchet

Fig. 17

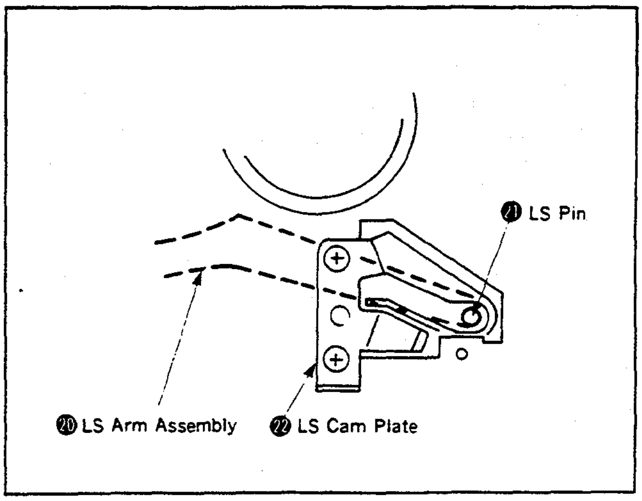

㉑ LS Pin
⑳ LS Arm Assembly
㉒ LS Cam Plate

Fig. 18

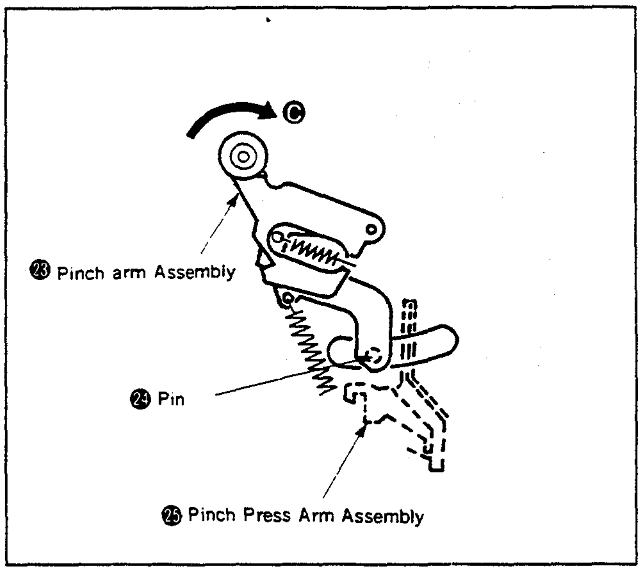

Ⓒ
㉓ Pinch arm Assembly
㉔ Pin
㉕ Pinch Press Arm Assembly

Fig. 19

3-8 PINCH ARM ASSEMBLY (Fig. 20)

1. Removal

1) Referring to 1-1, remove the cassette compartment holder assembly.
2) Referring to 3-7, remove the LS chassis assembly.
3) Remove the lock washer ❷ from the back of the LS chassis assembly ❶.
4) Remove the spring, tension ❸, and then, pinch arm assembly ❹.

2. Mounting

1) As shown in Fig. A, apply oil to the hole of the boss ❺ over one third of a drip up to half a drip.
2) put the rotation center of the pinch arm assembly in the boss ❺ hole, and the pin ❻ in the long hole.
3) Hook the spring, tension ❸ onto the upper groove of the pinch return spring shaft ❼.
4) Mount the lock washer ❷ from the back of the LS chassis assembly ❶.
5) Referring to 3-7, mount the LS chassis assembly.
6) Referring to 1-1, mount the cassette compartment holder assembly.

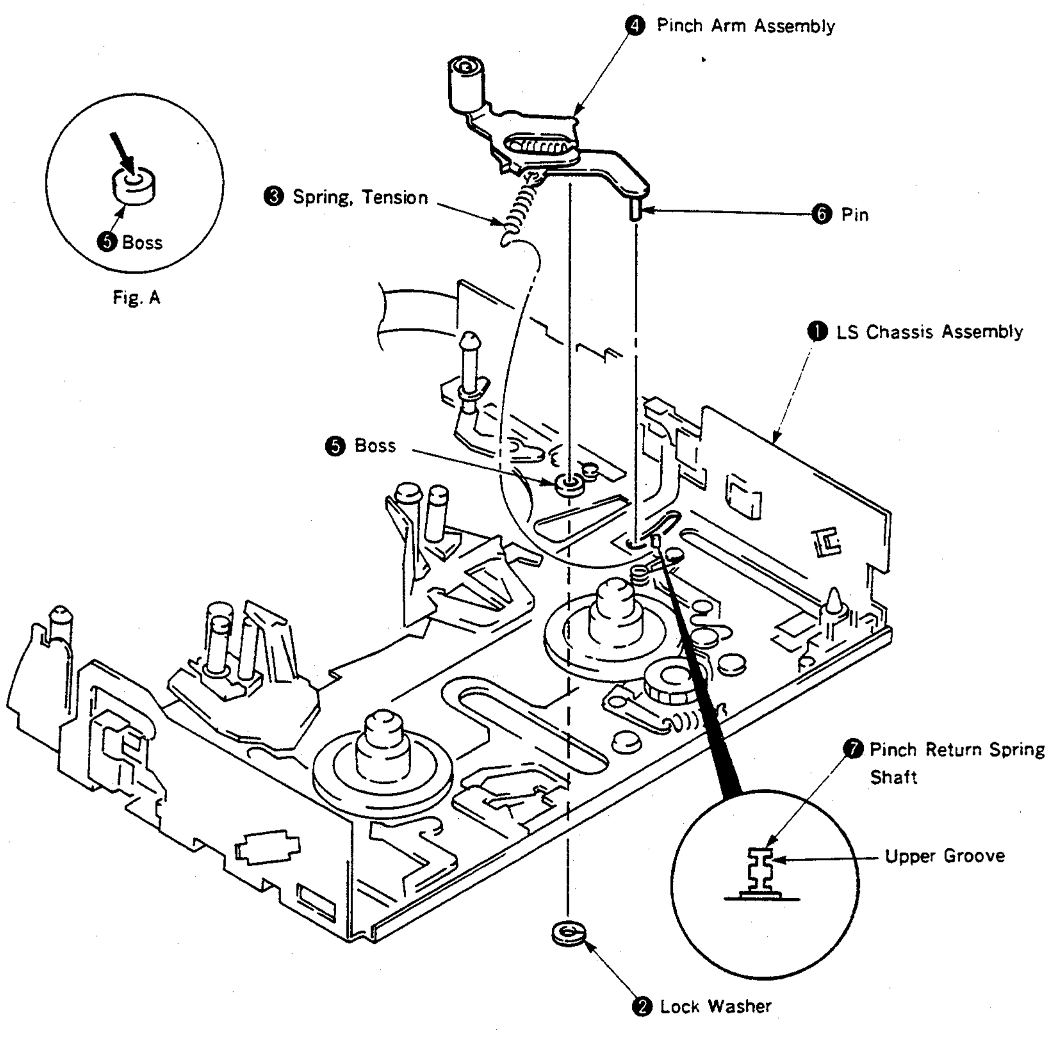


Fig. A

❹ Pinch Arm Assembly
❺ Boss
❸ Spring, Tension
❻ Pin
❶ LS Chassis Assembly
❺ Boss
❼ Pinch Return Spring Shaft
Upper Groove
❷ Lock Washer

Fig. 20

3-9 TG-11 ARM ASSEMBLY (Fig. 21)

1. Removal

1) Referring to 1-1, remove the cassette compartment holder assembly.
2) Referring to 3-7, remove the LS chassis assembly.
3) Remove the lock washer ❷ from the back of the LS chassis assembly ❶.
4) Remove the TG-11 arm assembly ❸ and spring, torsion ❹.

Note : Be careful not to deform the TG-11 arm.

2. Mounting

1) As shown in Fig. A, apply oil to a boss hole over one third of a drip up a half a drip.
2) As shown in Fig. B, put the longer arm of the spring, torsion ❹ between the pinch arm boss ❺ and cam slider shaft ❽ of the LS chassis. Next, Hook the shorter arm of the spring, torsion ❹ around the pin ❻ of the TG-11 arm assembly ❸, rotate the TG-11 arm assembly and fix with the lock washer ❷. When this is done, see to it that the pin ❻ of the TG-11 arm assembly ❸ is located to the left side of the cam slider ❾ as shown in Fig. C.
3) Referring to 3-7, mount the LS chassis.
4) Referring to 1-1, mount the cassette compartment holder.

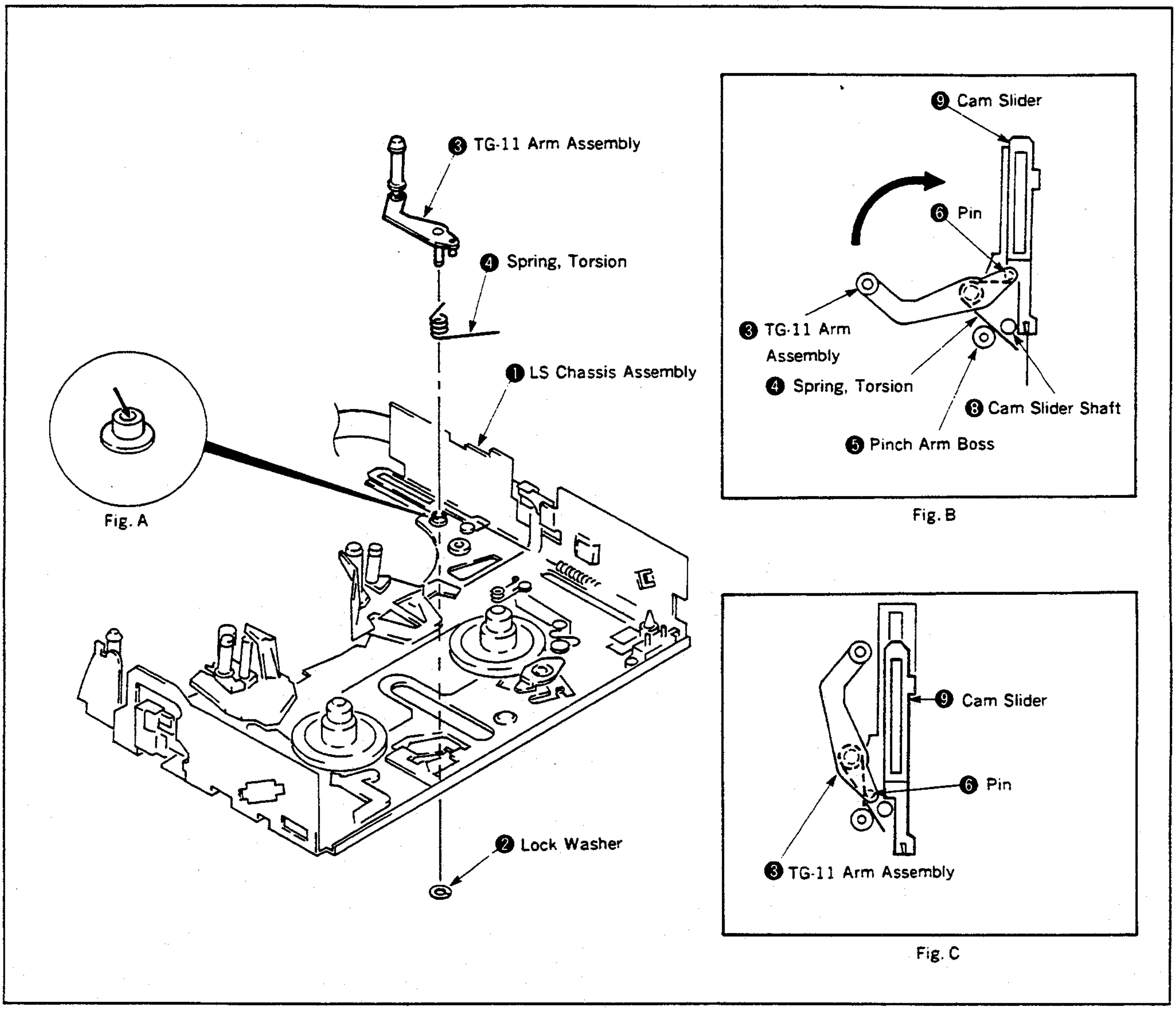

❸ TG-11 Arm Assembly
❹ Spring, Torsion
❶ LS Chassis Assembly
❷ Lock Washer
Fig. A
❾ Cam Slider
❻ Pin
❸ TG-11 Arm Assembly
❹ Spring, Torsion
❽ Cam Slider Shaft
❺ Pinch Arm Boss
Fig. B
❾ Cam Slider
❻ Pin
❸ TG-11 Arm Assembly
Fig. C

Fig. 21

3-10 TG-1 ARM ASSEMBLY (Fig. 22)

1. Removal

1) Referring to 1-1, remove the cassette compartment holder assembly.
2) Referring to 3-7, remove the LS chassis.
3) Referring to 3-3, remove the table assy, reel, supply.
4) Remove the lock washer ❷ from the back of the LS chassis assembly ❶.
5) Remove the spring, tension ❸. Remove the string joint ❹ from the dowel ❺ of the TG-1 adjustment block ❾ by rotating it in a direction of the arrow Ⓐ as shown in Fig. C.
6) Remove the TG-1 arm assembly ❻.

Note : Dismount and remount the string joint ❹ carefully not to deform it.

2. Mounting

1) As shown in Fig. A, apply oil to the hole of the boss ❼ over one third of a drip up to half a drip.
2) As shown in Fig. C, mount the string joint ❹ to the TG-1 adjustment block ❾ in the opposite direction of the arrow Ⓐ.
3) Mount the TG-1 arm assembly ❻ to the boss ❼ in such a manner not to touch the guide and insert the pin ❽ into the long hole.
4) Hook the spring, tension ❸ onto the position shown in Fig. B.
5) Mount the lock washer ❷ from the back of the LS chassis assembly ❶.
6) Referring to 3-3, mount the table assy, reel, supply.
7) Referring to 3-7, mount the LS chassis assembly.
8) Referring to 1-1, mount the cassette compartment holder assembly.

Note : Referring to 3-27, adjust a tension regulator position.

Note : Referring to 3-28, adjust a FWD back tension.

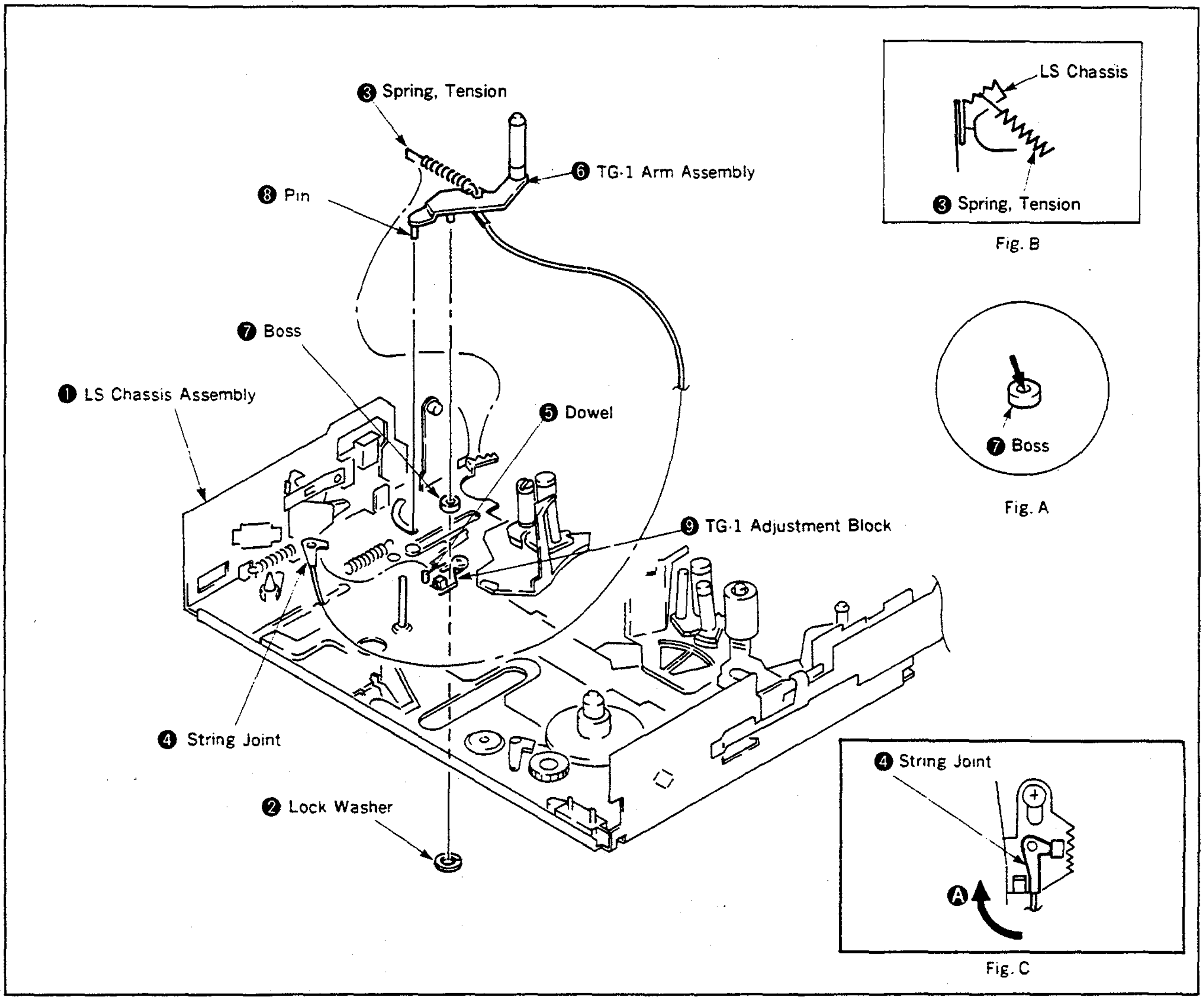

❸ Spring, Tension
❻ TG-1 Arm Assembly
❽ Pin
❼ Boss
❶ LS Chassis Assembly
❺ Dowel
❾ TG-1 Adjustment Block
❹ String Joint
❷ Lock Washer
LS Chassis
❸ Spring, Tension
Fig. B
❼ Boss
Fig. A
❹ String Joint
Ⓐ
Fig. C

Fig. 22

3-11 STRING JOINT (Fig. 23)

1. Removal

1) Referring to 3-10, remove the TG-1 arm assembly ❶.
2) Remove the joint holder ❷, and then, string assembly ❸.

2. Mounting

1) Put the dowel ❹ of the TG-1 arm assembly ❶ into the hole of the string assembly ❸ and mount the joint holder ❷. (Apply screw lock between the joint holder and TG-1 arm assembly.)
2) Referring to 3-10, mount the TG-1 arm assembly ❶.

Note : Be careful not to bend the string assembly ❸.

Note : Do not touch the guide ※.

Note : The joint holder ❷, which was removed once, must not be used again.

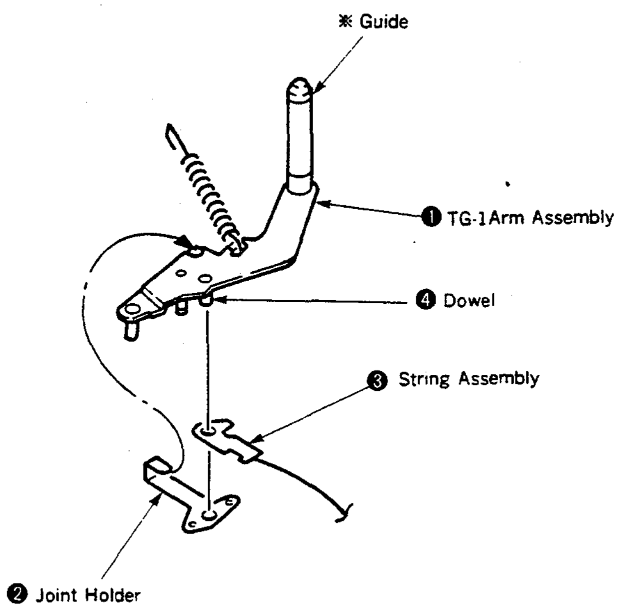

※ Guide
❶ TG-1Arm Assembly
❹ Dowel
❸ String Assembly
❷ Joint Holder

Fig. 23

3-12 GUIDE ARM T ASSEMBLY, GUIDE ARM S ASSEMBLY

1. Removal

1) Referring to 1-1, remove the cassette compartment holder assembly.
2) Referring to 3-7, remove the LS chassis assembly.
3) Rotate the guide arm T assembly ❶ and guide arm S assembly in arrow directions respectively, align their shafts ❸ with the holes as shown in Fig. A, and remove them. (Fig. 24)

Note : Do not touch the guide ※. (Fig. 25 and Fig. 26)

2. Mounting

1) After inserting the guide arn T and S assemblies in the reverse order of removal, rotate them in the opposite directions of the arrows respectively.
2) Fit the TG-7 base assembly ❺ and TG-9 base assembly ❻ in the grooves of the guide rail T ❹. (Fig. 25)
3) Put the shaft ⓬ flange in the long groove of the guide rail S ❽, and fit the TG-4 base assembly ❾ and TG-6 base assembly ❿ into the right and left grooves of the guide rail S ❽ respectively.
   When this is done, see to it that the flat spring of the TG-6 base assembly❿ is located below the guide rail S ❽ as shown in Fig. B. (Fig.26)
4) Referring to 3-7, mount the LS chassis assembly.
5) Referring to 1-1, mount the cassette compartment holder assembly.

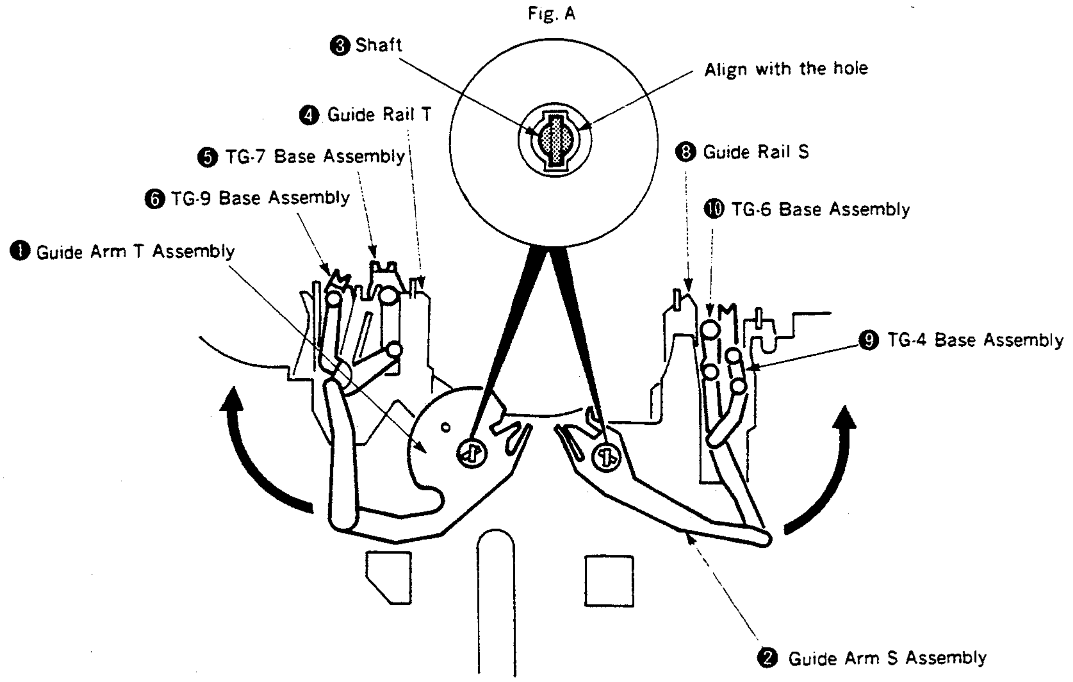


Fig. A
❸ Shaft
Align with the hole
❹ Guide Rail T
❺ TG-7 Base Assembly
❽ Guide Rail S
❻ TG-9 Base Assembly
❿ TG-6 Base Assembly
❶ Guide Arm T Assembly
❾ TG-4 Base Assembly
❷ Guide Arm S Assembly

LS Chassis Assembly Viewed from Back

Fig. 24

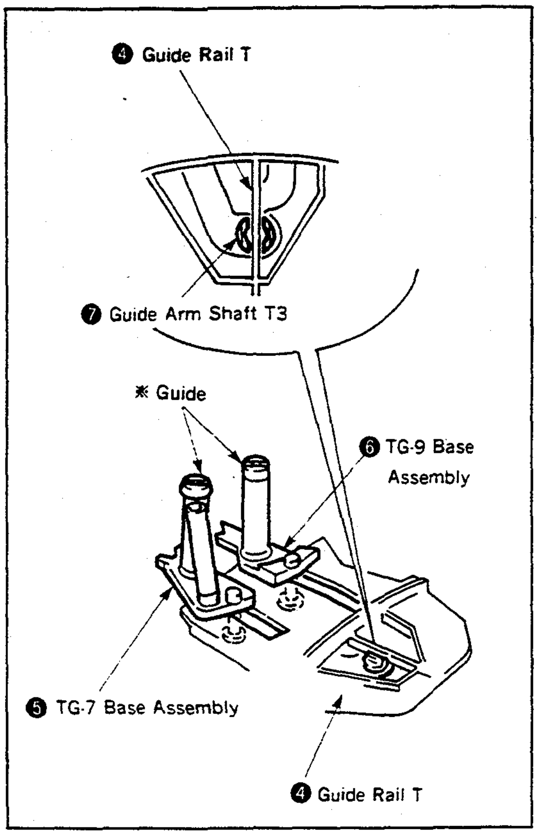

❹ Guide Rail T
❼ Guide Arm Shaft T3
※ Guide
❻ TG-9 Base Assembly
❺ TG-7 Base Assembly
❹ Guide Rail T

Fig. 25

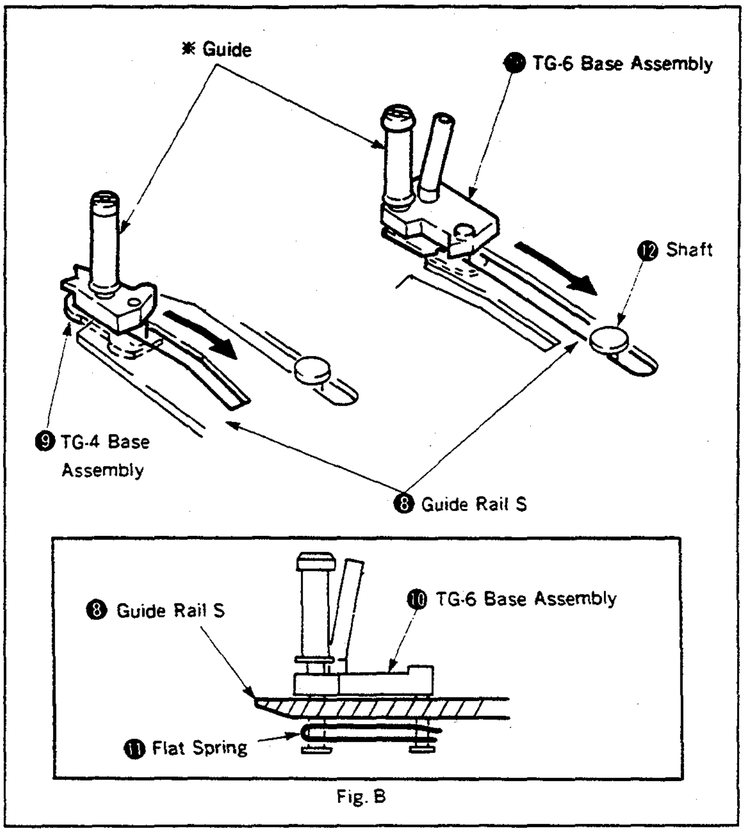

※ Guide
❿ TG-6 Base Assembly
⓬ Shaft
❾ TG-4 Base Assembly
❽ Guide Rail S
❽ Guide Rail S
❿ TG-6 Base Assembly
⓫ Flat Spring
Fig. B

Fig. 26

3-13 PINCH PRESS ARM ASSEMBLY (Fig. 27)

1. Removal

1) Referring to 1-1, remove the cassette compartment holder assembly.
2) Referring to 3-7, remove the LS chassis.
3) Remove the screw ❶, and then, pinch press arm assembly ❷.

2. Mounting

1) As shown in A, apply half a drip of molyton grease to an arrowindicated part of a boss hole.
2) As shown in Fig. B, apply half a drip of molyton grease each to the pinch press arm assembly ❷ at 3 places.
3) Put the pin ❹ of the pinch press arm assembly ❷ in the groove of the cam B ❸.
4) Fix. with the screw ❶.
5) Referring to 3-7, mount the LS chassis assembly.
6) Referring to 1-1, mount the cassette compartment holder assembly.

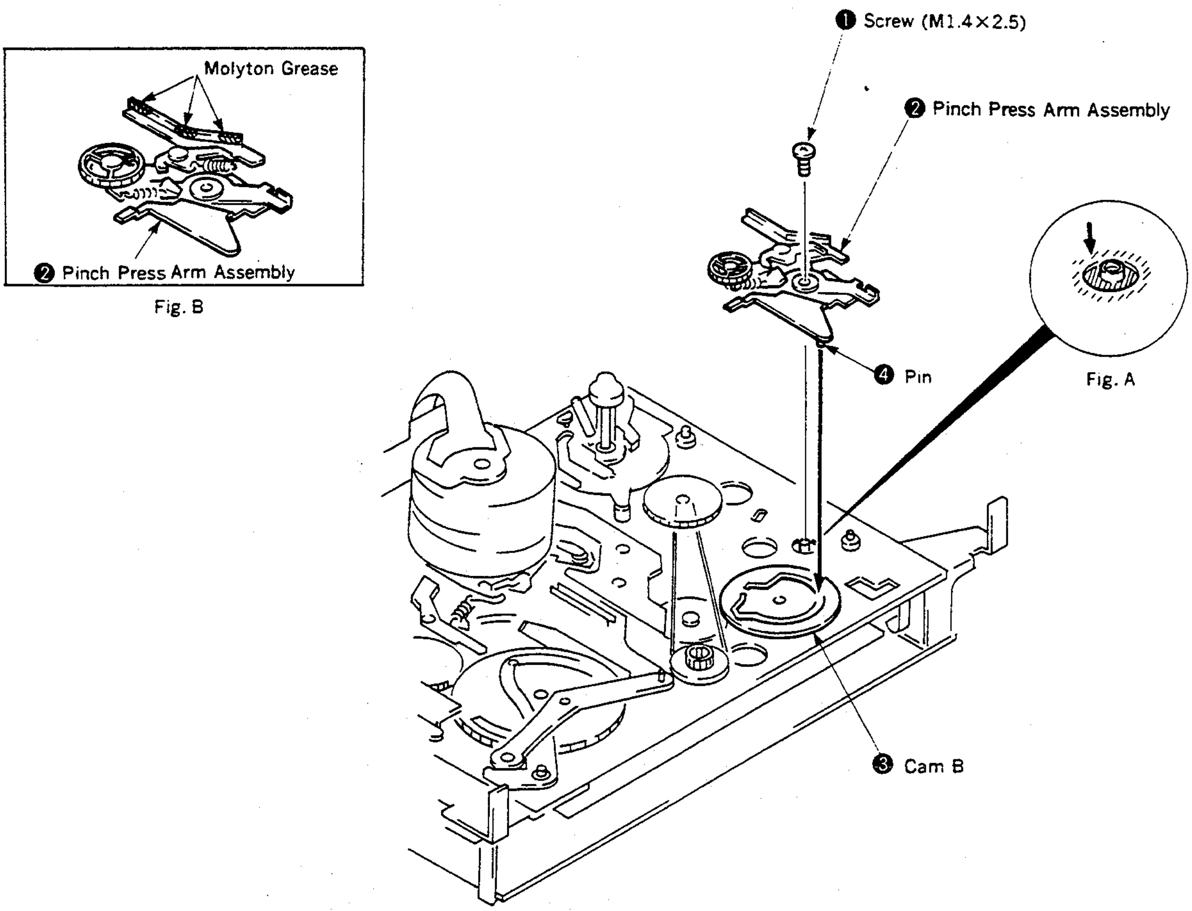

❶ Screw (M1.4×2.5)
❷ Pinch Press Arm Assembly
Molyton Grease
❷ Pinch Press Arm Assembly
Fig. B
❹ Pin
Fig. A
❸ Cam B

Fig. 27

3-14 GL SLIDER ASSEBLY (Fig. 28)

1. Removal

1) Refering to 1-1, remove the cassette compartment holder assembly.
2) Referring to 3-7, remove the LS chassis assembly.
3) Referring to 3-15, remove the cam A.
4) Shift the GL slider assembly ❹ in a direction of the arrowⒶ.
5) Remove the screw ❶, and then, GL support S ❷.
6) Remove the lock washer ❸, and then, GL slider assembly ❹.

2. Mounting

1) Fit the claw ❺ of the GL slider assembly ❹ in the groove of the GL support T ❼, and put the roller ❻ in the long hole of the chassis.
2) Stop with the lock washer ❸.
3) Shift the GL slider assembly ❹ in a direction of the arrowⒶ.
4) Fit the claw ❽ of the GL support ❷ in the part of the chassis marked with ※ and place the dowel ❾ in the hole of the chassis.
5) Fix with the screw ❶.
6) Referring to 3-7, mount the LS chassis assembly.
7) Referring to 1-1, mount the cassette compartment holder assembly.

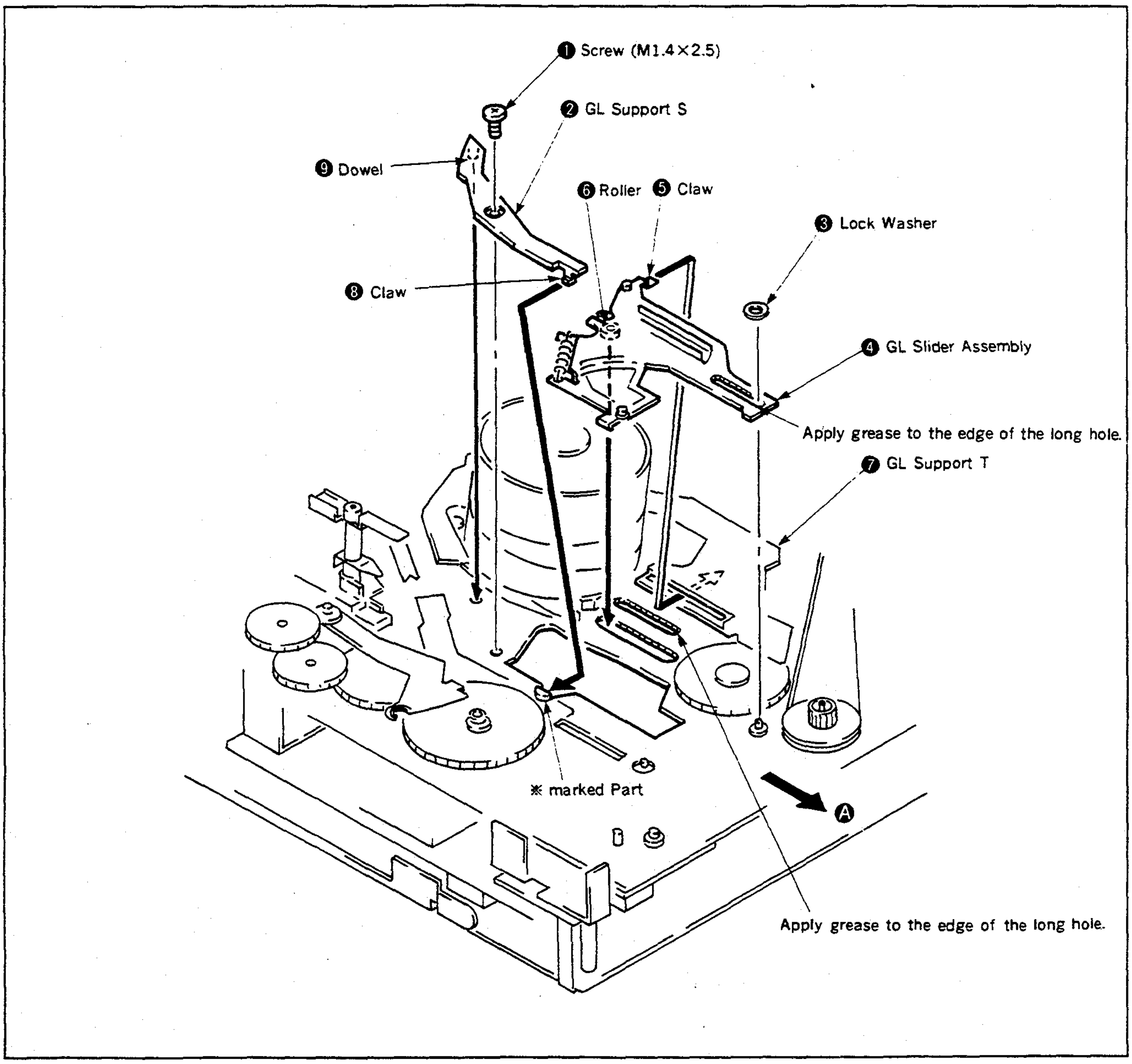

❶ Screw (M1.4×2.5)
❷ GL Support S
❾ Dowel
❻ Roller
❺ Claw
❸ Lock Washer
❽ Claw
❹ GL Slider Assembly
Apply grease to the edge of the long hole.
❼ GL Support T
※ marked Part
Ⓐ
Apply grease to the edge of the long hole.

Fig. 28

3-15 PHASE ADJUSTMENT(Fig. 29)

1. Removal

1) Referring to 1-1, remove the cassette compartment holder assembly.
2) Referring to 3-7, remove the LS chassis. (Wen this is done, one of the BLANK, REC and READY modes must be selected.)
3) Remove the two screws ①, and remove the TG-1 cam base ② by moving it in a direction of the arrow Ⓐ. (Remove the notch ㉒from the groove of the No. 3 gear shaft.)
4) Remove the screw ③, and remove the gear retainer ④ by sliding it in a direction of the arrow Ⓑ.
5) Remove the arm assembly ⑤, No. 0 gear ⑥, No. 1 gear assembly ⑦, No. 2 gear assembly ⑧, No. 3 gear assembly ⑨, lock washer㉓, and then, mode gear assembly⑩, respectively.
6) Being careful not to lose the LS roller㉔of the LS arm, remove the LS arm assembly⑪and EJ arm⑫, respectively.
7) Remove the screw⑬, and then, cam A⑭.
8) Referring to 3-13 3), remove the pinch press arm assembly.
9) Remove the screw⑮, and then, cam B⑯.

2. Adjustment and Mounting

1) Face the hole ⓐ of the mode gear assembly⑩to a direction of the arrow Ⓐ, move the GL slider assembly⑰in a direction of the arrow Ⓑ, apply molyton grease to the pin of the GL slider assembly⑰, and mount the LS roller⑱. (Fig. 30)
2) Set a direction of the cam A⑭so that the hole ⓒ of the cam A ⑭will be aligned with the hole of the mechanical chassis. (Fig. 31)
3) Move the GL slider⑰so that the LS roller㉔will be placed into the groove ⓓ of the cam A⑭. At the same time, engage the mode gear assembly⑩with the gear of the relay gear A⑲, and mount the cam A⑭. Insert a stick of about ϕ1.5mm in the hole ⓒ of the cam A⑭. (Fig. 31)
4) Align the hole ⓔ of the cam B⑯with the hole of the mechanical chassis. At the same time, engage the relay gear B⑳ with the gear and mount it. (Fig. 32)
5) Referring to 3-13, mount the pinch press arm assembly.
6) Align the hole ⓕ of the No. 3 gear assembly ⑨ with the hole of the mechanical chassis, and at the same time, engage the mode gear assembly⑩with the gear to mount. (Fig. 33)
7) Mount the No. 2 gear assembly ⑧, No. 1 gear assembly ⑦ and No. 0 gear ⑥ in that order. Mount the arm assembly ⑤ to the shaft and put the pin㉑in the groove of the No. 3 gear assembly ⑨. (Fig. 34)
8) Put the TG-1 cam base ② in place, fit the notch㉒to the shaft and shift it in an arrow direction, and mount the screws ① and ①'in that order. (Fig. 35)
9) Put the gear retainer ④ in place, slide it in an arrow direction and fix it with the screw ③. (Fig. 36)
10) Seeing to it that the EJ arm⑫and the LS roller㉔of the LS arm assembly⑪are put in the groove ⓖ of the cam A⑭, mount them in that order. (Fig. 29 and Fig. 30)
11) Referring to 3-7, mount the LS chassis assembly.
12) Referring to 1-1, mount the cassette compartment holder assembly.

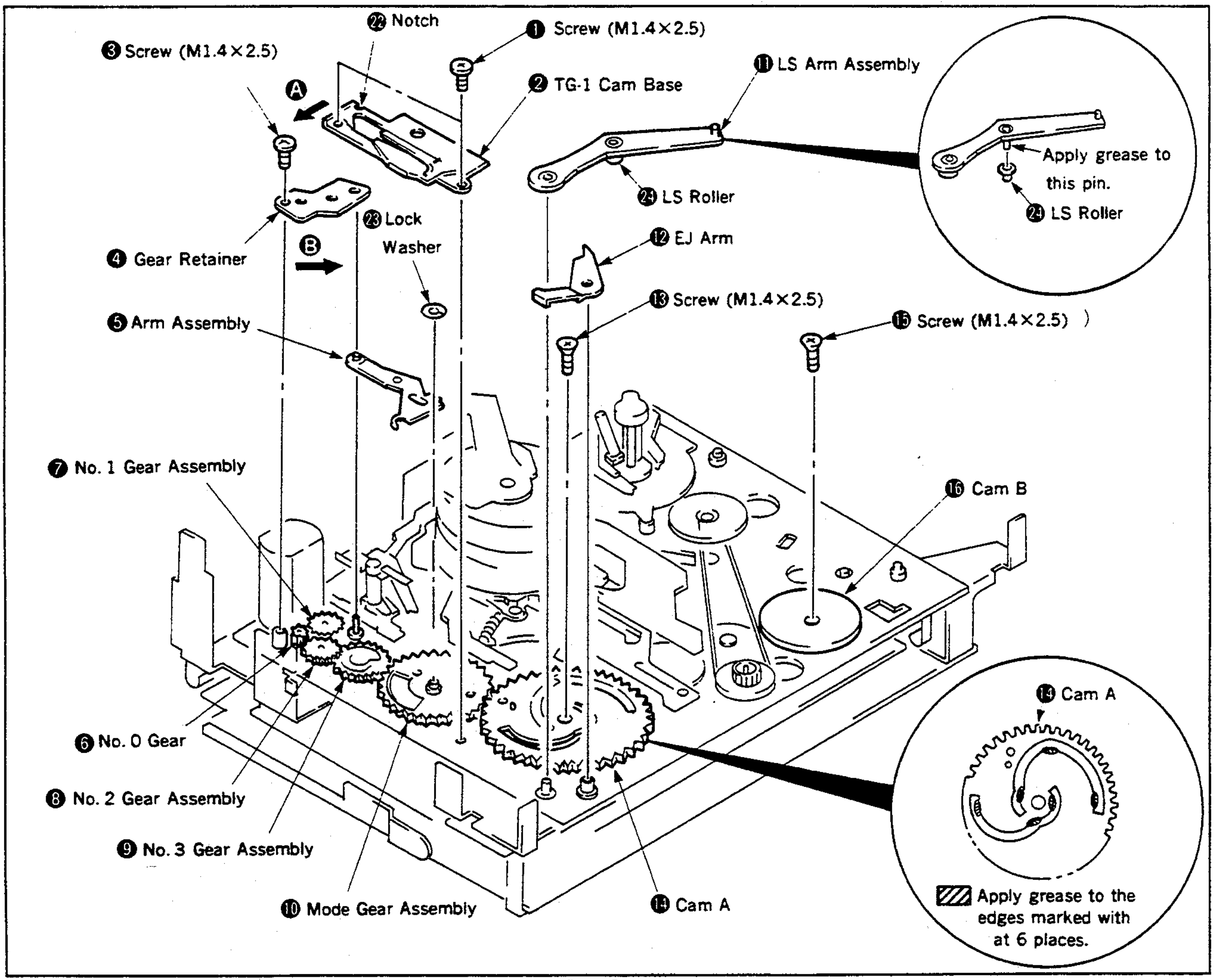

㉒ Notch
① Screw (M1.4×2.5)
③ Screw (M1.4×2.5)
⑪ LS Arm Assembly
Ⓐ
② TG-1 Cam Base
Apply grease to this pin.
㉔ LS Roller
㉔ LS Roller
㉓ Lock Washer
⑫ EJ Arm
④ Gear Retainer
Ⓑ
⑬ Screw (M1.4×2.5)
⑮ Screw (M1.4×2.5)
⑤ Arm Assembly
⑦ No. 1 Gear Assembly
⑯ Cam B
⑭ Cam A
⑥ No. 0 Gear
⑧ No. 2 Gear Assembly
⑨ No. 3 Gear Assembly
⑩ Mode Gear Assembly
⑭ Cam A
▨ Apply grease to the edges marked with at 6 places.

Fig. 29

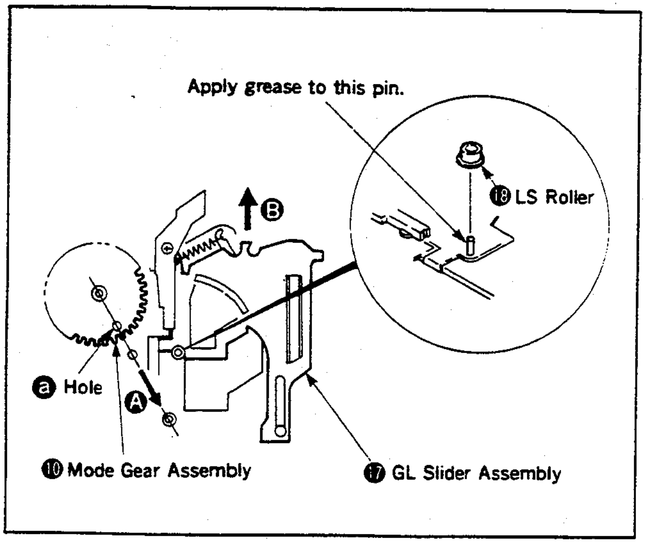

Apply grease to this pin.
⓲ LS Roller
Ⓑ
ⓐ Hole
Ⓐ
❿ Mode Gear Assembly
⓱ GL Slider Assembly

Fig. 30

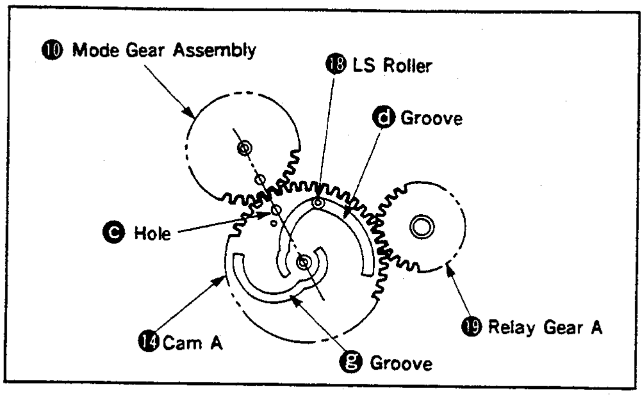

❿ Mode Gear Assembly
⓲ LS Roller
ⓓ Groove
ⓒ Hole
⓳ Relay Gear A
⓮ Cam A
ⓖ Groove

Fig. 31

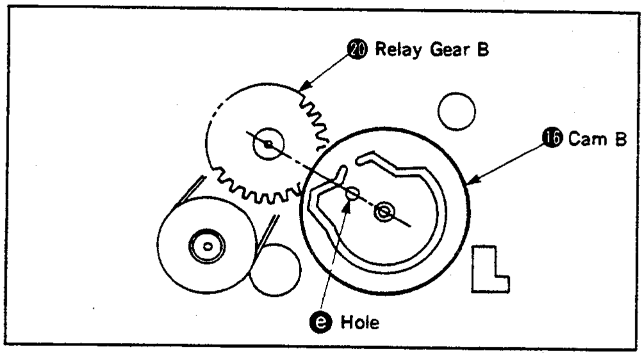

⓴ Relay Gear B
⓰ Cam B
ⓔ Hole

Fig. 32

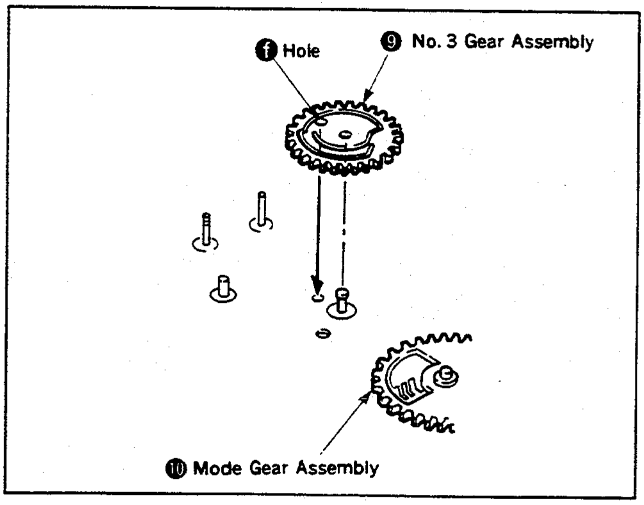

ⓕ Hole
❾ No. 3 Gear Assembly
❿ Mode Gear Assembly

Fig. 33

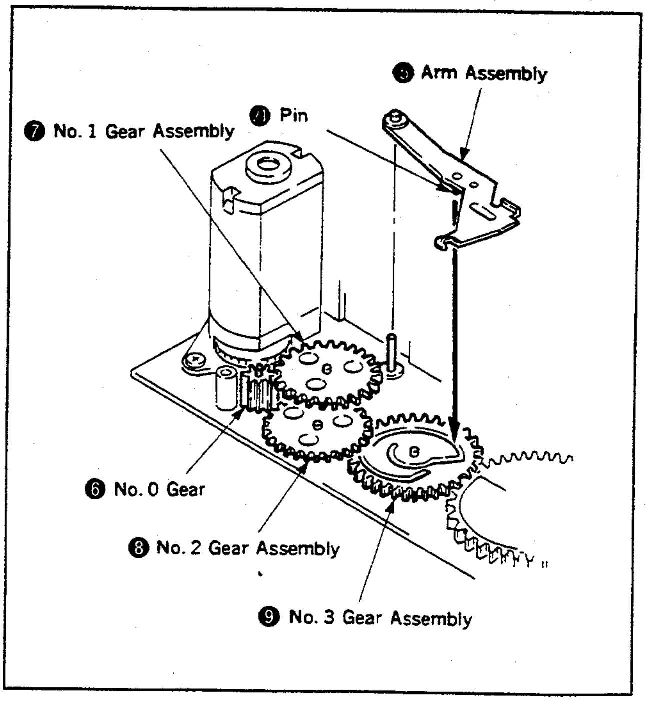

❺ Arm Assembly
㉑ Pin
❼ No. 1 Gear Assembly
❻ No. 0 Gear
❽ No. 2 Gear Assembly
❾ No. 3 Gear Assembly

Fig. 34

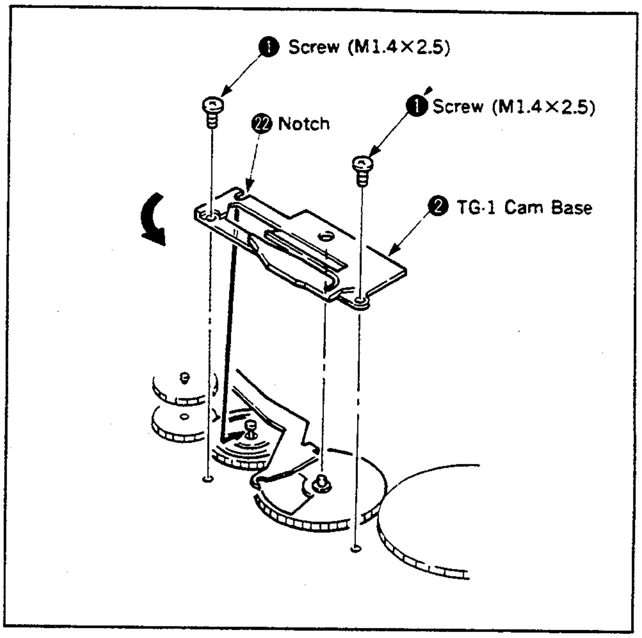

❶ Screw (M1.4×2.5)
❶′ Screw (M1.4×2.5)
㉒ Notch
❷ TG-1 Cam Base

Fig. 35

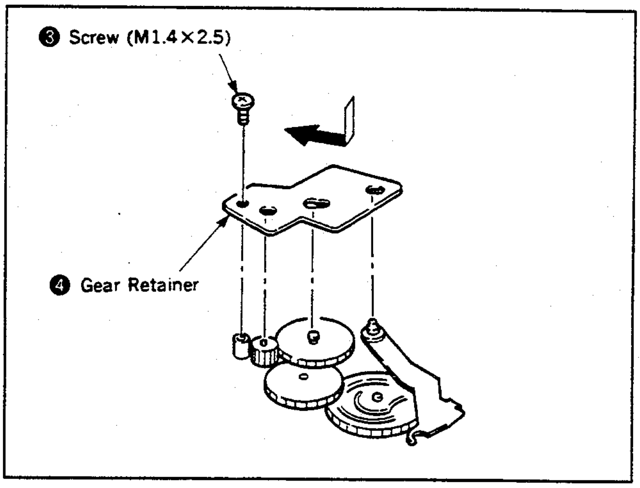

❸ Screw (M1.4×2.5)
❹ Gear Retainer

Fig. 36

3-16 GEAR TRAIN OPERATION CHECK (Fig. 37)

1. Removal

1) Referring to 1-1, remove the cassette compartment holder assembly.
2) Referring to 3-7, remove the LS chassis.
3) Referring to 3-17, remove the loading motor.

2. Check

1) Insert the tip of tweezers into the hole a of the cam A ❶.
2) Rotate the cam A ❶ by about two thirds of a turn in a direction of the arrowⒶ, and then, in a direction of the arrow Ⓑ by the same amount. Repeat this 3 times.
3) When this is done, check that each, gear, the GL slider assembly and LS arm assembly rotate smoothly, and that no load is applied to them.
4) At the same time, check that the LS roller ❷ is located almost at the end point of the groove of the cam A ❶ when the gear train comes into contact with the stoppers at both ends.

Note : When rotating the cam A ❶ with the tip of tweezers, etc., be careful not to scratch the mechanical chassis.

3. Mounting

1) Referring to 3-17, mount the loading motor.
2) Referring to 3-7, mount the LS chassis assembly.
3) Referring to 1-1, mount the cassette compartment holder assembly.

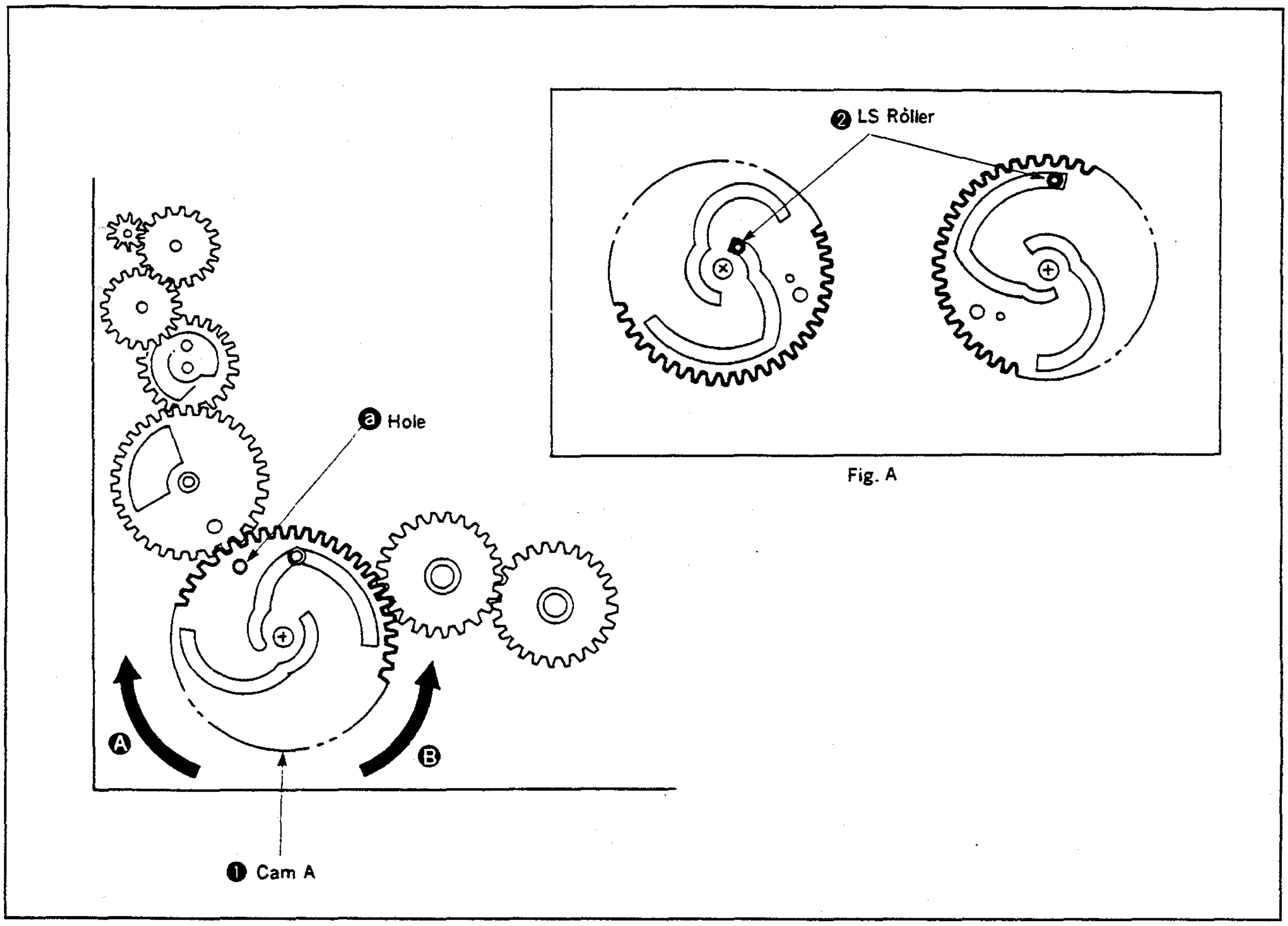


Fig. 37

3-17 LOADING MOTOR ASSEMBLY (Fig. 38)

1. Removal

1) Remove the LB-12 board.
2) Remove the connector ❶.
3) Remove the screws ❷ and ❸, and remove the loading motor assembly ❹ in an arrow direction.

2. Mounting

1) Put the pin ❺ of the loading motor assemmbly ❹ in the hole of the mechanical chassis, and mount it with the screws ❷ and ❸ in that order.
2) Mount the connector ❶.
3) Mount the LB-12 board.

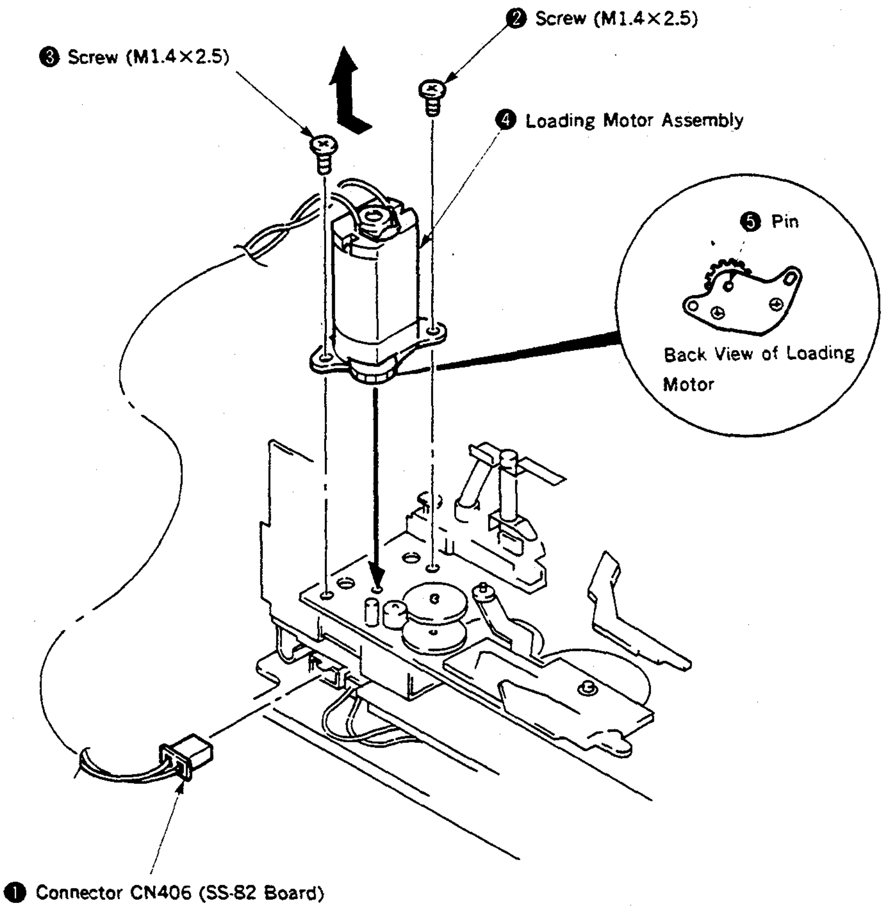

❷ Screw (M1.4×2.5)
❸ Screw (M1.4×2.5)
❹ Loading Motor Assembly
❺ Pin
Back View of Loading Motor
❶ Connector CN406 (SS-82 Board)

Fig. 38

3-18 GUIDE RAIL BASE 1 ASSEMBLY (Fig. 39)

1. Removal

1) Referring to 1-1, remove the cassette compartment holder assembly.
2) Unskate the LS chassis a little.
3) Remove the two screws ❶, and then, guide rail base 1 assembly ❷.

Note : Be careful not to lose the spacers inserted in the parts ⓐ and ⓑ of the guide rail base 1 assembly ❷. (Fig. B)

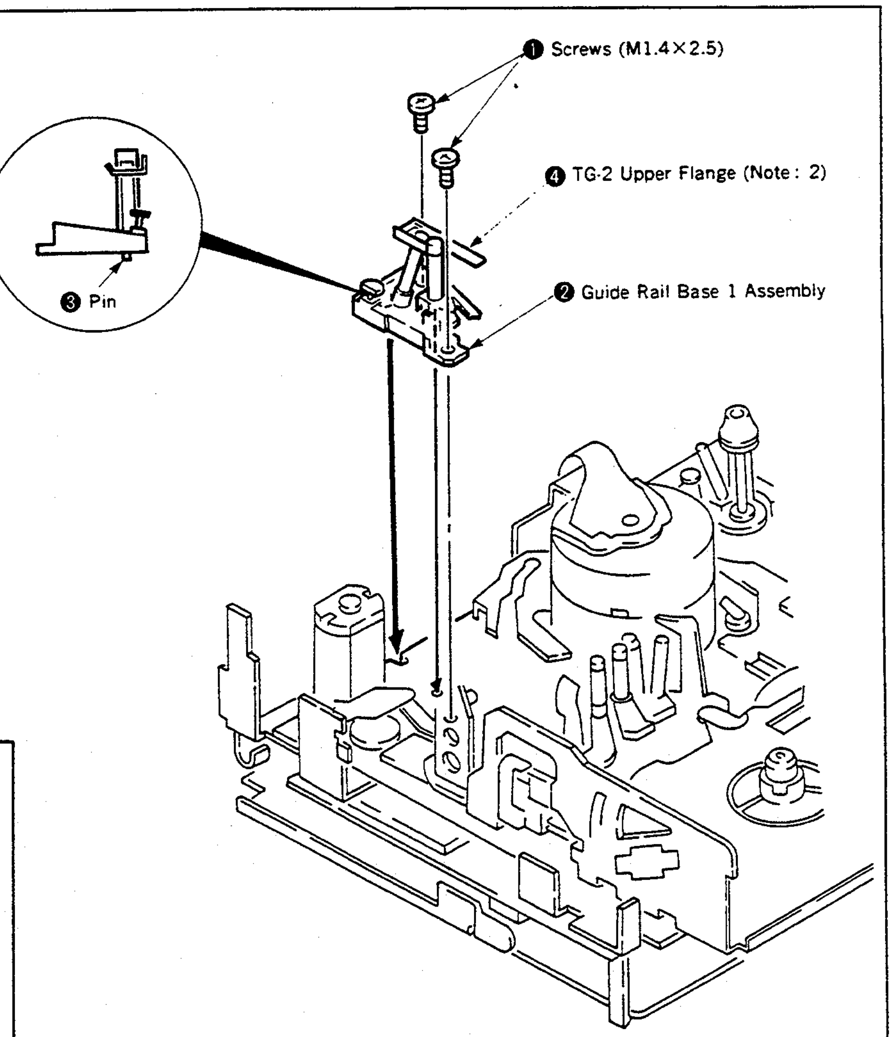
2. Mounting

1) Apply half a drip each of molyton grease at 2 places on the back of the guide rail base 1 assembly. (Fig. A)
2) Put the pin ❸ of the guide rail base 1 assembly ❷ in the notch of the chassis, and tighten the two screws ❶ with a torgue of 0.6kg·cm.
3) Referring to 1-1, mount the cassette compartment holder assembly.

Note1 : Mount paying attention to the number of spacers inserted and their locations.

Note2 : When tightening the screws, be careful not to bend the TG-2 upper flange ❹ with a screwdriver bit.

Note3 : Note that the part c of the guide rail base 1 assembly is easily broken. (Fig. B)


❶ Screws (M1.4×2.5)
❹ TG-2 Upper Flange (Note : 2)
❷ Guide Rail Base 1 Assembly
❸ Pin

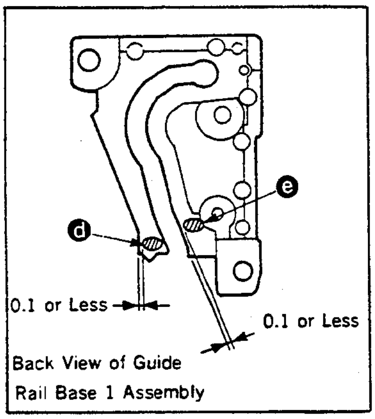

ⓓ
ⓔ
0.1 or Less
0.1 or Less
Back View of Guide Rail Base 1 Assembly

Fig. A

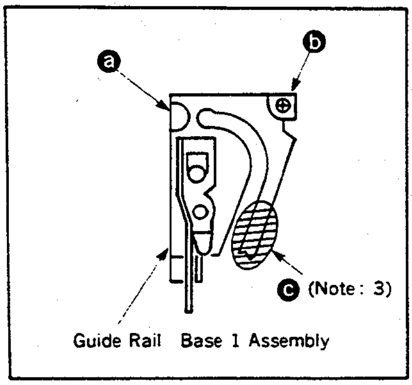

ⓐ
ⓑ
ⓒ (Note : 3)
Guide Rail Base 1 Assembly

Fig. B

図39.

3-19 GUIDE RAIL BASE 2 ASSEMBLY (Fig. 40)

1. Removal

1) Referring to 1-1, remove the cassette compartment holder assembly.
2) Referring to the Service Manual, open the board in the back of the mechanical chassis.
3) Remove the four screws ❶, and then, frame B assembly ❷ in a direction of the arrowⒶ.
4) Unskate the LS chassis a little.
5) Remove the two screws ❸, and then, guide rail base 2 assembly ❹ in a direction of the arrowⒷ.

Note: Be careful not to hit the drum with a screwdriver bit because the screws are located closed to a drum lead.

2. Mounting

1) Apply half a drip of molyton grease each to 4 places on the back of the guide rail base 2 assembly. (Fig. A)
2) As shown in Fig. B, apply the striking parts of the guide rail base 2 assembly ❷ to the lower drum, and slide in an arrow direction to fit.
3) Pushing the part ※ of the guide rail base 2 assembly ❹ lightly in a direction ofⓔ (Fig. B), tighten the two screws ❸ with a torque of 0.8kg•cm.

Note: Note that the part f is easily broken.

4) Mount the frame B assembly with the four screws ❶.
5) Mount the opened board to the back of mechanical chassis.
6) Referring to 1-1, mount the cassette compartment holder assembly.

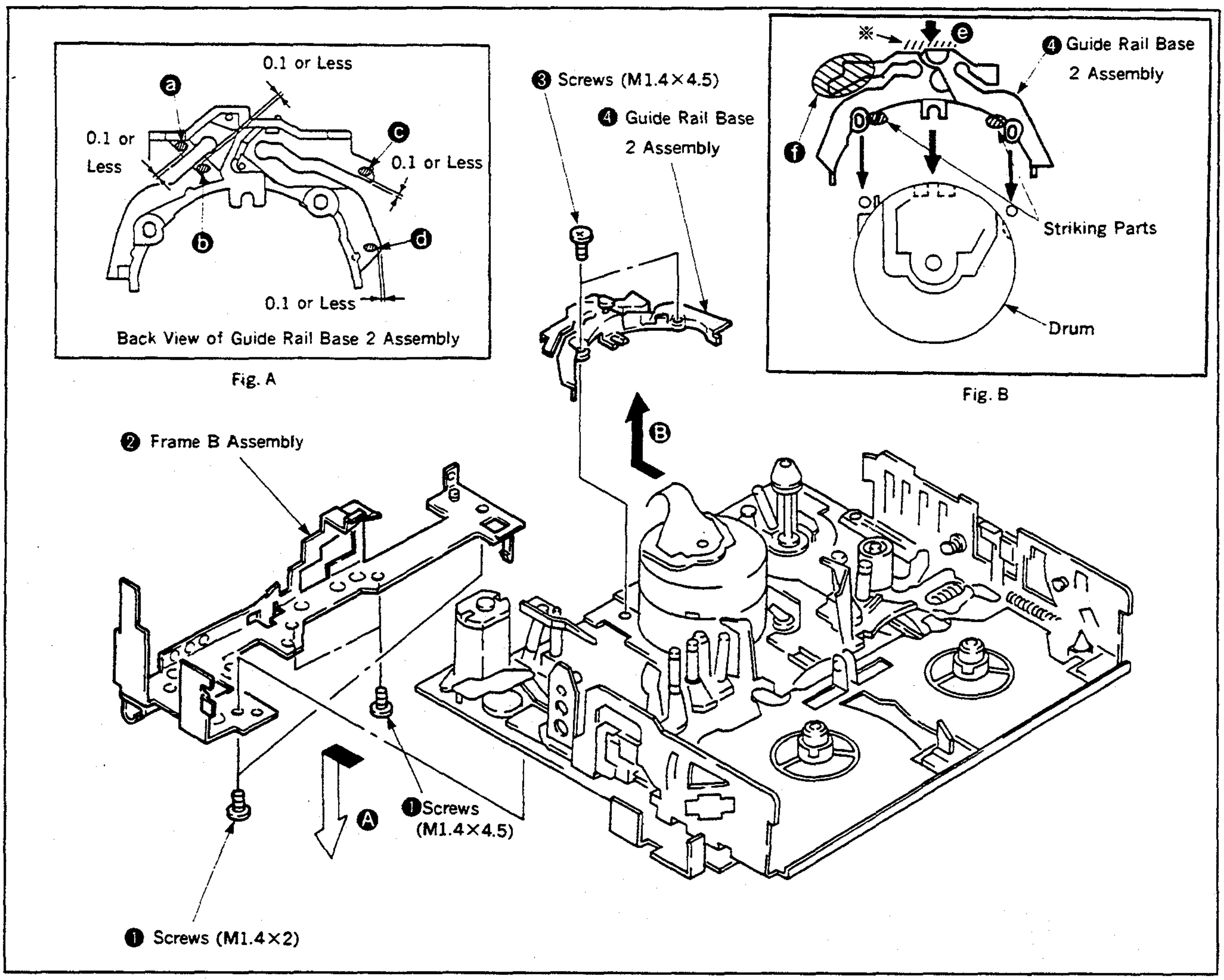

0.1 or Less
ⓐ
0.1 or Less
ⓒ
0.1 or Less
ⓑ
ⓓ
0.1 or Less
Back View of Guide Rail Base 2 Assembly
❸ Screws (M1.4×4.5)
❹ Guide Rail Base 2 Assembly
※
ⓔ
❹ Guide Rail Base 2 Assembly
ⓕ
Striking Parts
Drum
❷ Frame B Assembly
Ⓑ
Ⓐ
❶Screws (M1.4×4.5)
❶ Screws (M1.4×2)

Fig. A

Fig. B

Fig. 40

3-20 GUIDE RAIL BASE 3 ASSEMBLY (Fig. 41)

1. Removal

1) Referring to 1-1, remove the cassette compartment holder assembly.
2) Remove the flexible rotatry shaft ❸.
3) Remove the two screws ❶. Remove the guide rail base 3 assembly ❷ in an arrow direction, seeing to it that it does not hitch on the capstan housing.

Note : Handle the ※ marked part carefully because it is easily broken.

2. Mounting

1) Apply half a drip of molyton grease each to 2 places on the back of the guide rail base 3 assembly ❷. (Fig. A)
2) Mount the guide rail base 3 assembly ❷, seeing to it that it does not hitch on the capstan housing.
3) Tighten the two screws ❶ with a torque of 0.6kg•cm.
4) Mount the flexible rotary shaft ❸.
5) Referring to 1-1, mount the cassette compartment holder assembly.

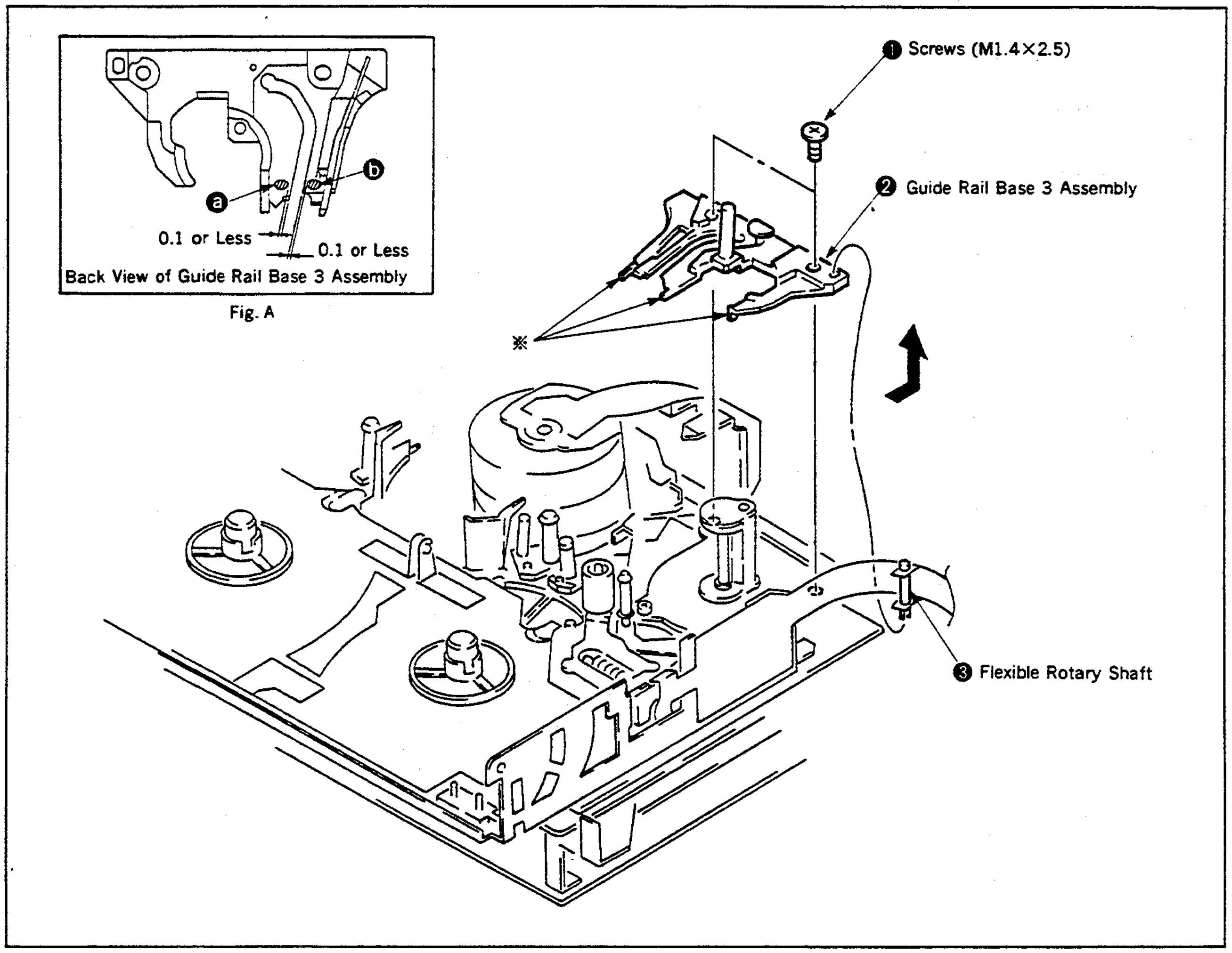

ⓑ
ⓐ
0.1 or Less
0.1 or Less
Back View of Guide Rail Base 3 Assembly
❶ Screws (M1.4×2.5)
❷ Guide Rail Base 3 Assembly
※
❸ Flexible Rotary Shaft

Fig. A

Fig. 41

3-21 CAPSTAN MOTOR ASSEMBLY (Fig. 42)

1. Removal

1) Referring to 1-1, remove the cassette compartment holder assembly.
2) Referring to 3-20, remove the guide rail base 3 assembly.
3) Remove the connector ❷ of the capstan motor assembly ❶.
4) Remove the screw ❸. Disengaging the gear of the conversion gear assembly ❹, remove the capstan motor assembly ❶ in an arrow direction (obliquely).

2. Mounting

1) As shown in Fig. A, incline the capstan motor assembly ❶ to engage the gear of the capstan motor assembly ❶ with that of the conversion gear assembly ❹, and tighten the screw 3 with a torque of 1kg•cm.
   When this is done, be careful not to damage the gear of the conversion gear assembly ❹.
2) Mount the connector 2 to the capstan motor assembly ❶.
3) Referring to 3-20, mount the guide rail base 3 assembly.
4) Referring to 1-1, mount the cassette compartment holder assembly.

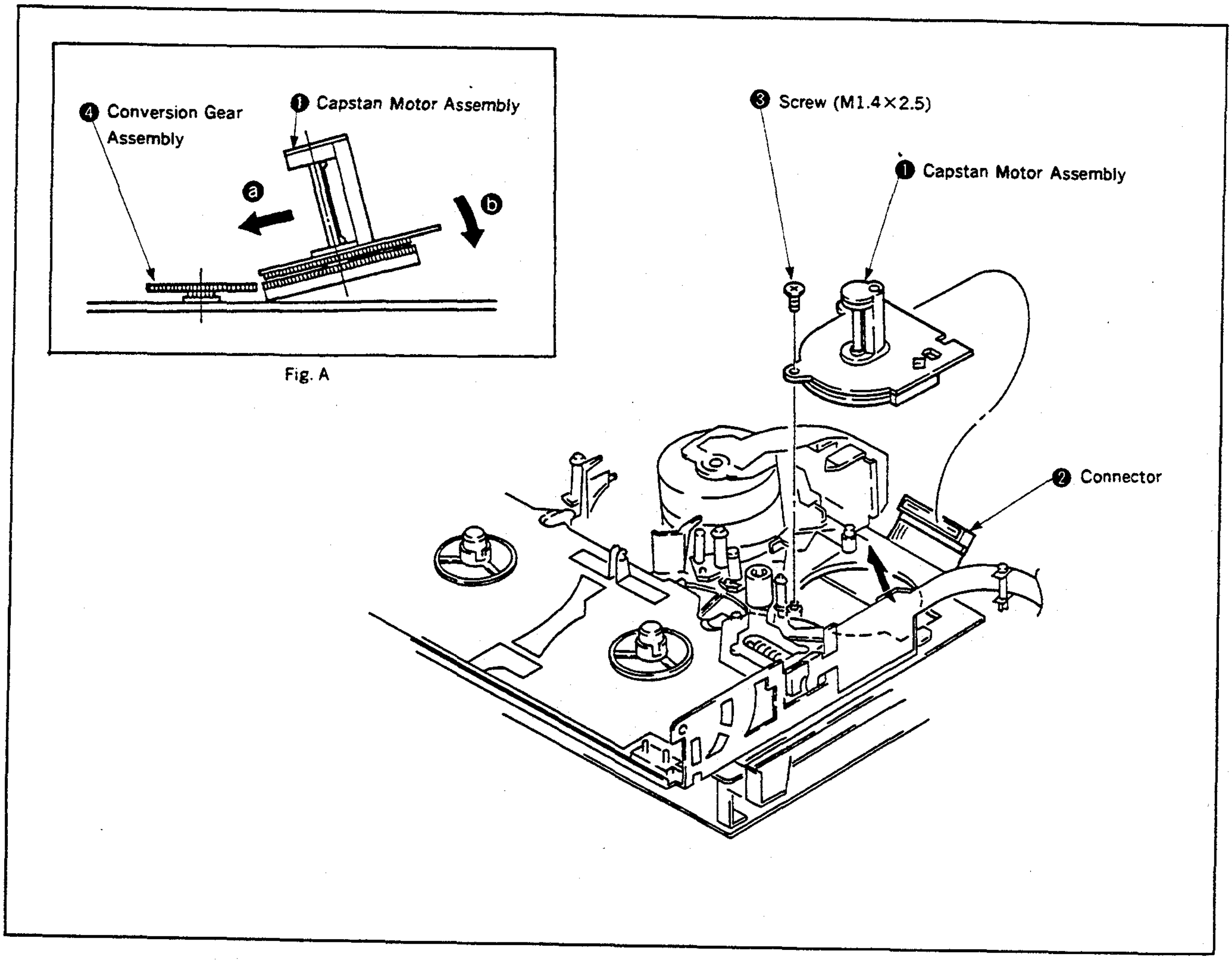

❹ Conversion Gear Assembly
❶ Capstan Motor Assembly
ⓐ
ⓑ
❸ Screw (M1.4×2.5)
❶ Capstan Motor Assembly
❷ Connector

Fig. A

Fig. 42

3-22 DRUM BASE ASSEMBLY (Fig. 42)

1. Removal

1) Referring to 1-1, remove the cassette compartment holder assembly.
2) Remove the motor flexible board ❶ from the board.
3) Referring to 3-19, remove the guide rail base 2 assembly.
4) Remove the two screws ❷.
5) Draw out the head flexible board ❸ carefully from the hole of the mechanical chassis not to damage it, and remove the drum base assembly.

2. Mounting

1) Put the head flexible board ❸ in the hole of the mechanical chassis and put the positioning pins ❺ of the drum base in the holes of the mechanical chassis.
2) Tighten the two screws ❷ with a torque of 0.8kg•cm.
3) Referring to 3-19, mount the guide rail base 2 assembly.
4) Mount the motor flexible board ❶ to the board.
5) Referring to 1-1, mount the cassette compartment holder assembly.

Note : After mounting, make tape path adjustment in Section 4.

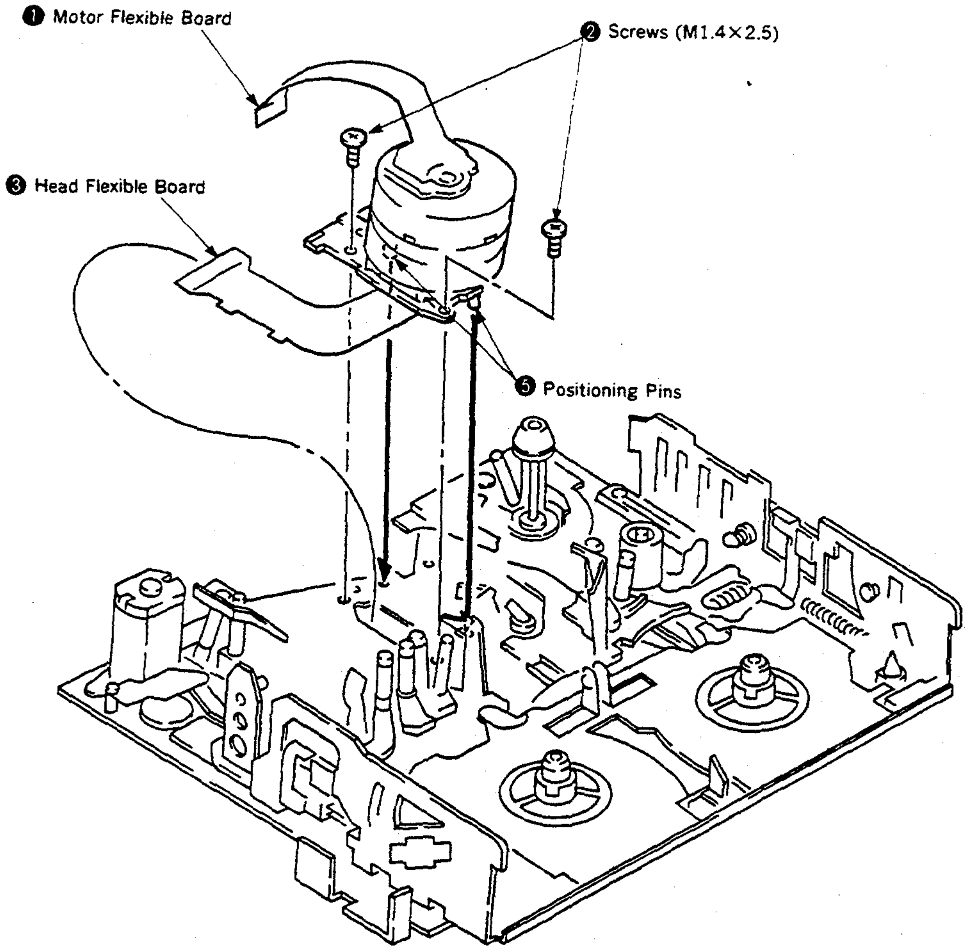


Fig. 42

3-23 DRUM ASSEMBLY (Fig. 43)

1. Removal

1) Referring to 1-1, remove the cassette compartment holder assembly.
2) Remove the motor flexible board ❶ from the board.
3) Referring to 3-19, remove the guide rail base 2 assembly.
4) Remove the three screws ❷ from the back of the mechanical chassis.
5) Draw out the head flexible board ❸ carefully from the hole of the mechanical chassis not to damage it, and remove the drum assembly ❹.

2. Mounting

1) Put the head flexible board ❸ in the hole of the mechanical chassis, and mount it so that the pins ⓑ and ⓓ will be put in the holes ⓐ and ⓒ shown in Fig. A.
2) Tighten the three screws ❷ with a torque of 0.5kg•cm.
3) Referring to 3-19, mount the guide rail base 2 assembly.
4) Mount the motor flexible board ❶ to the board.
5) Referring to 1-1, mount the cassette compartment holder assembly.

Note : After mounting, make tape path adjustment in Section 4.

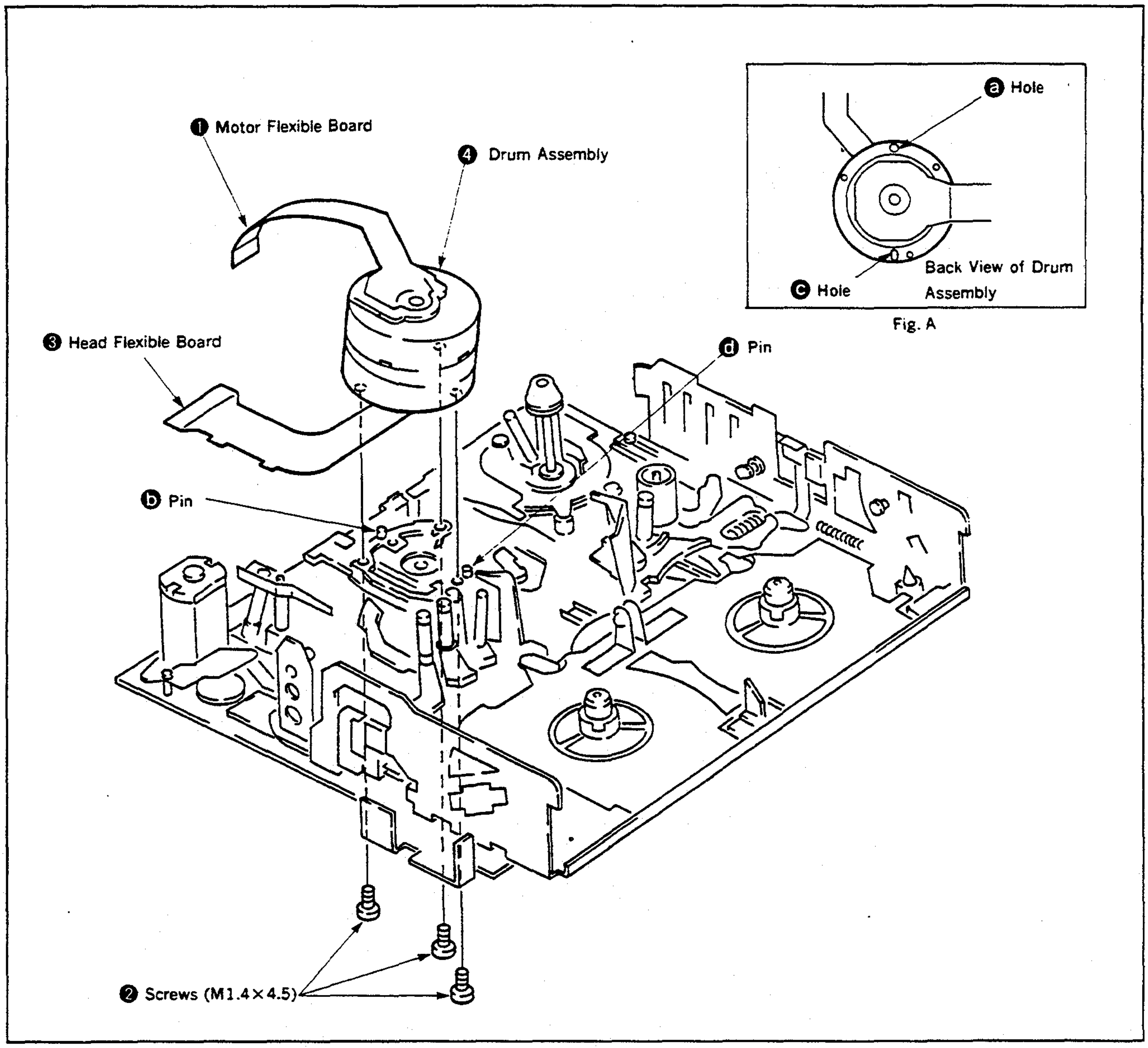
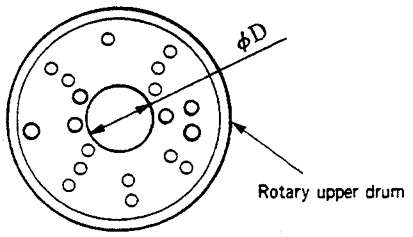

ⓐ Hole
❶ Motor Flexible Board
❹ Drum Assembly
Back View of Drum Assembly
ⓒ Hole
Fig. A
ⓓ Pin
❸ Head Flexible Board
ⓑ Pin
❷ Screws (M1.4×4.5)

Fig. 43

3-24 Replacement of Rotary Upper Drum Assembly

There are two rotary upper drum assembly types, depending on a color mark.˙ (Fig. A in Fig. 45)



NTSC:

A-7049-190-A	Rotary upper drum assembly DGR-32-R-(1)
A-7049-189-A	Rotary upper drum assembly DGR-32-R-(2)

PAL:

A-7049-197-A	Rotary upper drum assembly DGR-37-R-(1)
A-7049-198-A	Rotary upper drum assembly DGR-37-R-(2)

Manufacturing upper dram

RANK	ϕD	MARK	
A	$\phi 8^{+0.0015}_{+0.001}$	Green	−01
B	$\phi 8^{+0.001}_{+0.0005}$	Green, Brown	
C	$\phi 8^{+0.0005}_{0}$	Black	
D	$\phi 8^{0}_{-0.0005}$	Black, Brown	
E	$\phi 8^{-0.0005}_{-0.001}$	Red	−11
F	$\phi 8^{-0.001}_{-0.0015}$	Red, Brown	
G	$\phi 8^{-0.0015}_{-0.002}$	Blue	
H	$\phi 8^{-0.002}_{-0.0025}$	Blue, Brown	

➡

Repairing upper drum

SUFFIX	ϕD	REMARKS	DRUM UPPER
−01	$\phi 8^{+0.001}_{+0.0005}$	Green, Brown	NTSC DGR-32-R-(1) PAL DGR-37-R-(1)
	$\phi 8^{+0.0005}_{0}$	Black	
−11	$\phi 8^{-0.001}_{-0.0015}$	Red, Brown	NTSC DGR-32-R-(2) PAL DGR-37-R-(2)
	$\phi 8^{-0.0015}_{-0.002}$	Blue	

1. Removal

1) Referring to 3-23, remove the drum assembly.
2) Remove the two screws ❶. (Fig. 44)
3) Hold the outlet (base) of the guide protector ❷, lift it up obliquely. In that state, hold the outer figure of the back yoke ❸ and remove it. (Fig. 44)

Note: Note that the flexible board and guide protector ❷ easily come off position because they are only pasted.

4) As shown in Fig. A, set the rotor earth spring ❹ around spring hook. (Fig. 44)
5) Using a drum screwdriver (Ref. No. J-11), remove the two hexagon socket bolts ❺, and then, rotary upper drum assembly ❻. (Fig. 45)
6) Using the drum screwdriver (Ref. No. J-11), remove the two hexagon socket bolts ❼, and then, rotor ❽. (Fig. A in Fig. 45)

2. Mounting

1) Clean the flange surface❿and the surface of the rotary upper drum assembly ❻ which comes into contact with it, and make sure that there is no dust or scratch. (Fig. 45)
2) Adjust a direction of the upper drum so that the head contact mold pin⓫will be put in the reference hole of the rotary upper drum assembly ❻, and push it in lightly. (Fig. 45)

Note: Check visually that the clearance between the upper and lower drums is about 0.05mm.

3) Using the drum screwdriver (Ref. No. J-11), tighten the two hexagon socket bolts ❺ (800g•cm) and rotate it with finger to make sure that there is no abnormality. (Fig. 45)
4) Put the pin ❾ of the rotor ❽ in the hole of the rotary upper drum assembly. Using the drum screwdriver (Ref. No. J-11), tighten the hexagon socket bolts ❼. (800g•cm) (Fig. A in Fig. 45)
5) Remove the rotor earth spring ❹ from the spring hook. Using tweezers, etc., hook it onto the groove of the stator boss⓬. (Fig. B in Fig. 45)

Note: See to it that the rotor earth spring ❹ is not located in the gap between the flange and stator.

6) Hold the outer figure of the back yoke ❸, put it on the inner step of the upper drum and insert the other side slowly. (Fig. B in Fig. 44)
7) Tighten the two screws ❶. (500g•cm) (Fig. 44)
8) Rotate the upper drum with finger to check that it runs smoothly.
9) Referring to 3-23, mount the drum assembly.

Note: After mounting, be sure to make tape path adjustment in Section 4.

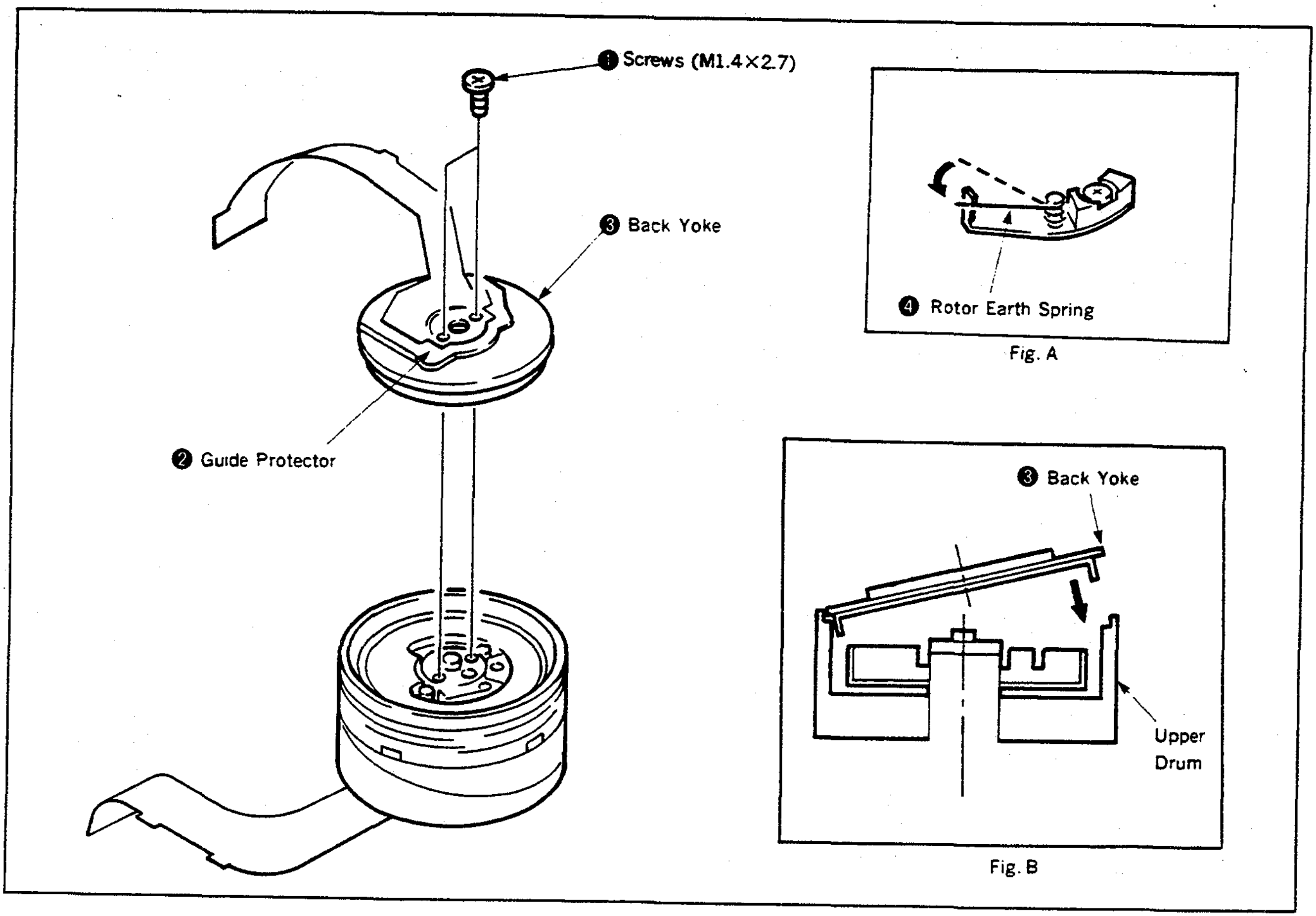

❶ Screws (M1.4×2.7)
❸ Back Yoke
❷ Guide Protector
❹ Rotor Earth Spring
❸ Back Yoke
Upper Drum

Fig. A

Fig. B

Fig. 44

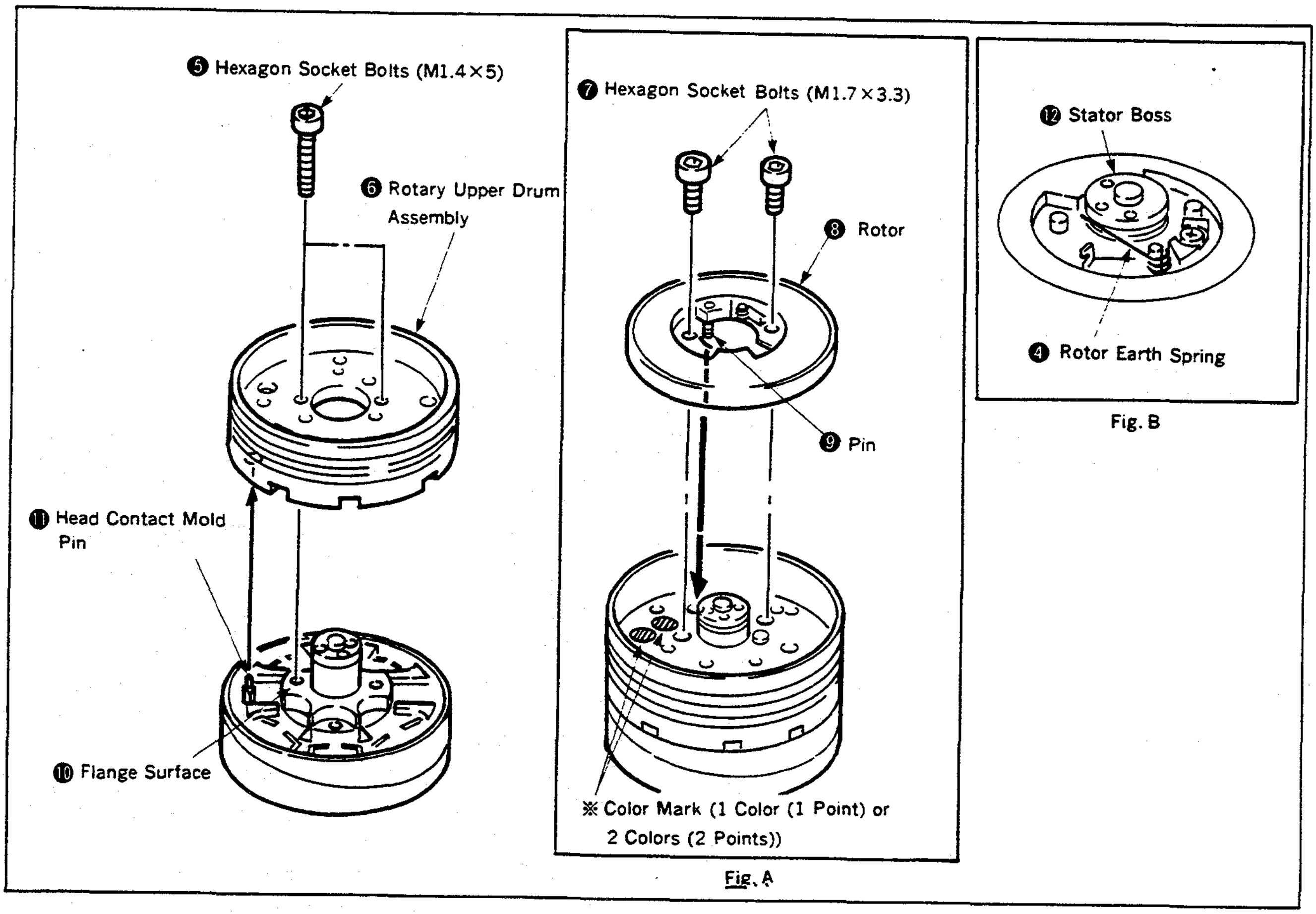

❺ Hexagon Socket Bolts (M1.4×5)
❻ Rotary Upper Drum Assembly
⓫ Head Contact Mold Pin
❿ Flange Surface
❼ Hexagon Socket Bolts (M1.7×3.3)
❽ Rotor
❾ Pin
※ Color Mark (1 Color (1 Point) or 2 Colors (2 Points))
⓬ Stator Boss
❹ Rotor Earth Spring

Fig. A

Fig. B

Fig. 45

3-25 REEL TABLE HEIGHT CHECK (Fig. 46)

1. Removal

1) Referring to 1-1, remove the cassette compartment holder assembly.
2) Referring to 3-1, remove the LED base.

2. Check

1) Using slide calipers, etc., check that distances from the LS chassis to the S reel table reel resting surface ② and T reel table reel resting surface ③ are 3.2±0.5mm respectively.

3. Mounting

1) Referring to 3-1, mount the LED base.
2) Referring to 1-1, mount the cassette compartment holder assembly.

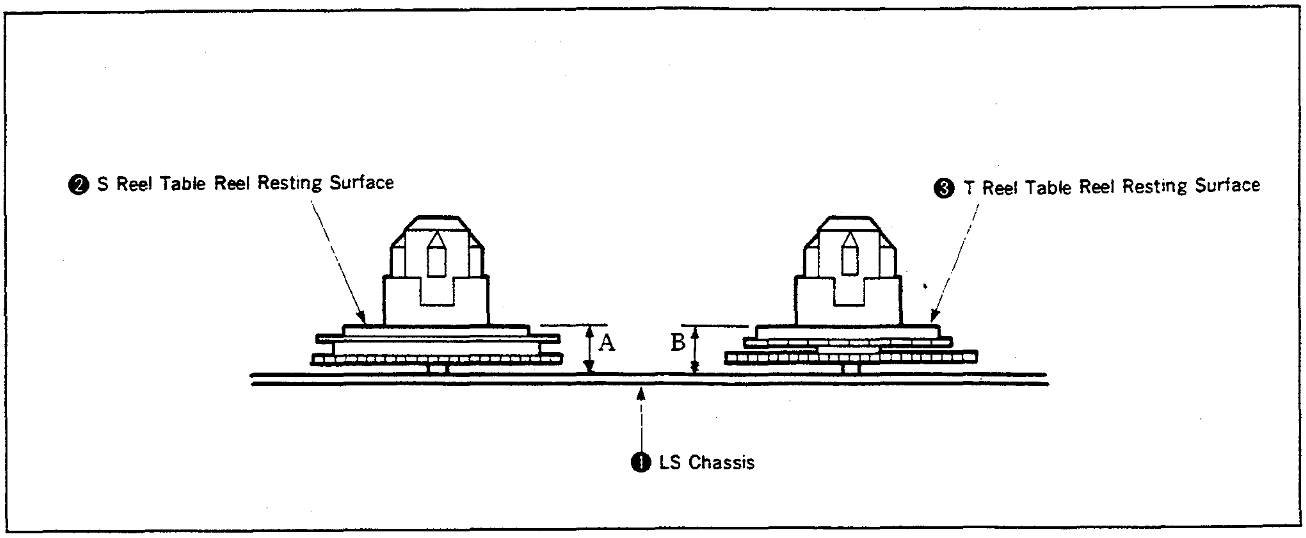

② S Reel Table Reel Resting Surface
③ T Reel Table Reel Resting Surface
A
B
① LS Chassis

Fig. 46

3-26 FWD/RVS TORQUE CHECK

1) Set the FWD/RVS take-up torque cassette (Ref. No. J-10).
2) In the FWD mode, check that a T reel torque value is 6g•cm − 16g•cm.
3) Turn on the REC/REVIEW button and check that an S reel torque value is 25g•cm − 45g•cm.
4) When the values above are not met, replace the respective reel tables.

3-27 TENSION REGULATOR POSITION ADJUSTMENT

1. Removal

1) Referring to 1-1, remove the cassette compartment holder.

2. Adjustment

1) Set a cassette tape, select the REC mode and run the tape. (Refer to 1-3)
2) With the tape running, check that the distance between TG-1 and TG-2 is 9.58±0.2mm. (Fig. 47)
3) When they are not at specified positions, remove the cassette and go through the steps 4) on.
4) Referring to 3-1, remove the LED base.
5) Loosen the screw ❶.
6) When TG-1 is located inside (or outside) its specified position, shift the TG-1 adjustment block 2 slightly in a direction of the arrowⒶ (orⒷ) and fix with the screw ❶. (Fig. 48)
7) Referring to 3-1, mount the LED base.

Note : Use the cassette tape after feeding the tape as far as a middle point.

Note : When taking the steps 4) and 5), remove the cassette tape first.

3. Mounting

1) Referring to 1-1, mount the cassette compartment holder assembly.

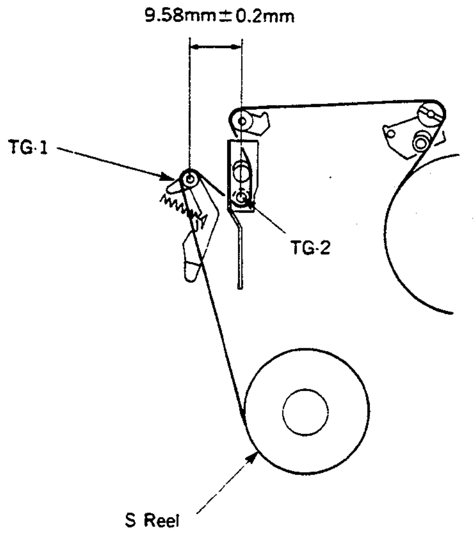


Fig. 47

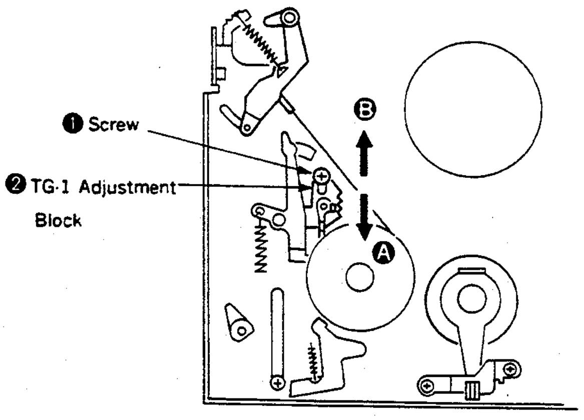


Fig. 48

3-28 FWD BACK TENSION ADJUSTMENT (Fig. 49)

1. Removal

1) Referring to 1-1, remove the cassette compartment assembly.
2) Referring to 3-7, remove the LED base.

2. Adjustment

1) Select the REC mode.
2) Set the tension measurement reel (Ref. No. J-8)❶.
3) Using the dial tension gauge (Ref. No. J-7)❷, measure a tape tension at the outlet of TG-2. When this is done, pull the tape at a rate of 14mm/sec.
4) Change the position of the tention regulator spring ❸ position as shown in Fig. A so that measure center value of the tention is 4.5g-6.5g.

Note : When this is done, see to it that the gear ❹ is not engaged with the S reel table.

3. Mounting

1) Referring to 1-1, mount the cassette compartment holder assembly.
2) Referring to 3-1, mount the LED base.

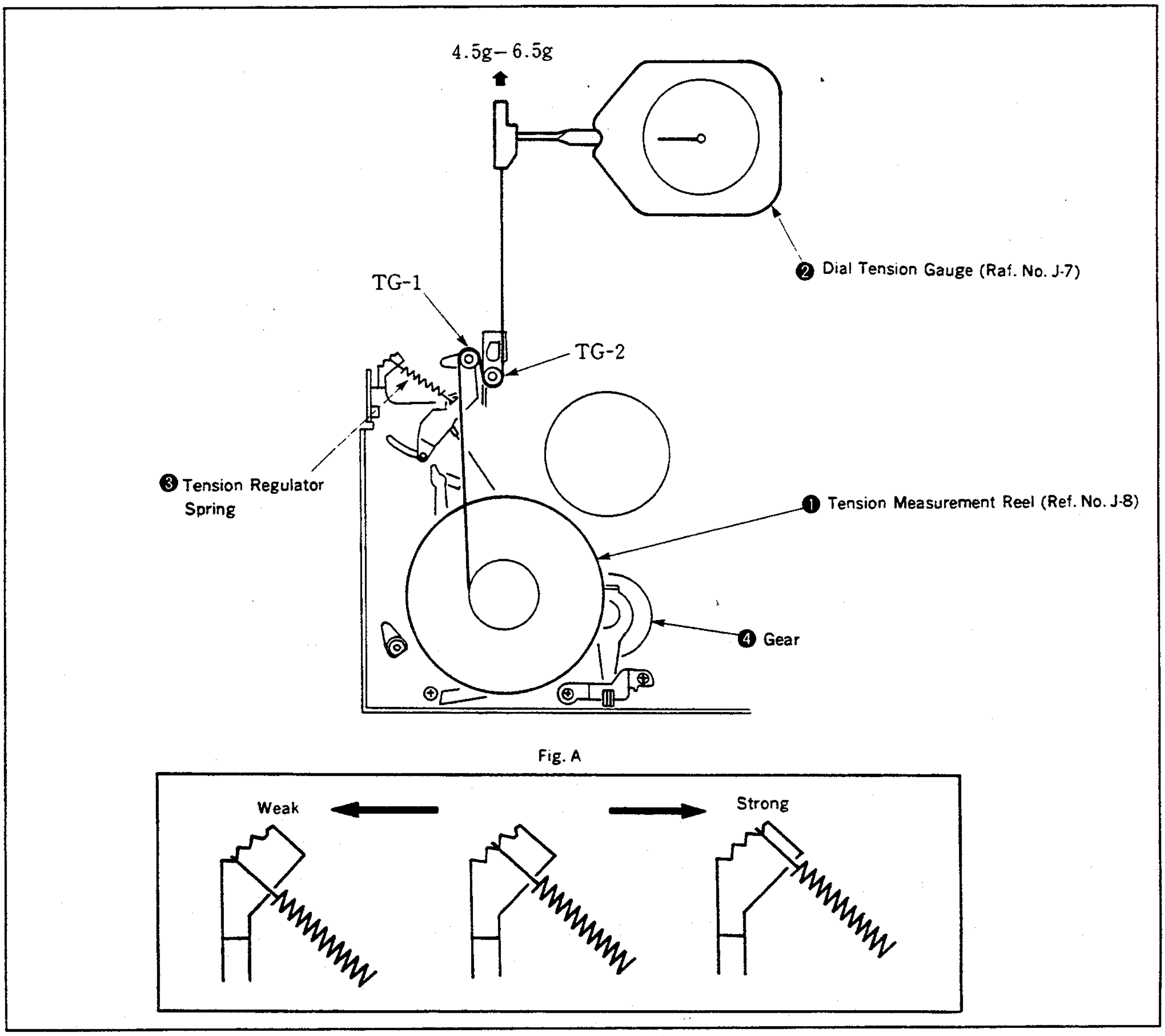

4.5g– 6.5g
❷ Dial Tension Gauge (Raf. No. J-7)
TG-1
TG-2
❸ Tension Regulator Spring
❶ Tension Measurement Reel (Ref. No. J-8)
❹ Gear
Fig. A
Weak
Strong

Fig. 49

4. TAPE PATH ADJUSTMENT

The 8mm video system uses ATF (Automatic Track Finding) which instantaneously controls a tape running speed based on 4 types of pilot signals and performs high-precision tracking.

This does away a tracking control knob and allows accurate track tracing.

On the other hand, however, the ATF system has a problem in adjusting the tape path system. That is, if head tracing is out of order a little, the ATF system automatically corrects it, which means that perfect adjustment cannot be done.

To avoid this problem, a track shift jig had been used to adjust the tape path system. In the FL (Q) mechanism, the ATF system is forcibly operated to shift a tracking amount constantly (approx. 1/4) by setting the PATH mode. So, fine tracking adjustment can be easily done.

No track shift jig is required any more.

Example) For CCD-V11/V88

CN404

4	GND
3	$\overline{\text{CAM ADJ}}$
2	$\overline{\text{TEST}}$
1	$\overline{\text{PATH}}$

The path mode is set by shorting the pins ① and ④.

4-1 PREPARATION FOR ADJUSTMENT

1) Clean the tape running surfaces (tape guides, drum, capstan shaft, pinch roller). (Fig. 51)
2) Set the PATH mode by shorting the TEST pins (CN404 pins ① and ④ for CCD-V11/V88).
3) Connect to an oscilloscope.
4) Play back a tracking alignment tape (NTSC: WR5-1N), (PAL: WR5-1C).
5) Check that a RF waveform is flat at the inlet and outlet of the oscilloscope. (Fig. 50 ⓐ)

   When it is not flat, make adjustment in accordance with the procedures below.

   When the RF waveform is not flat at the inlet/outlet; (Fig.50 ⓑ and ⓒ)

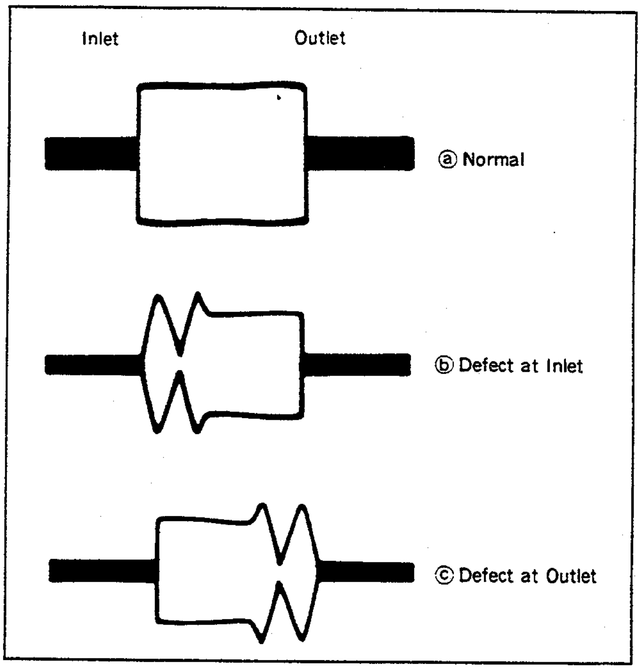

Inlet
Outlet
ⓐ Normal
ⓑ Defect at Inlet
ⓒ Defect at Outlet

Fig. 50

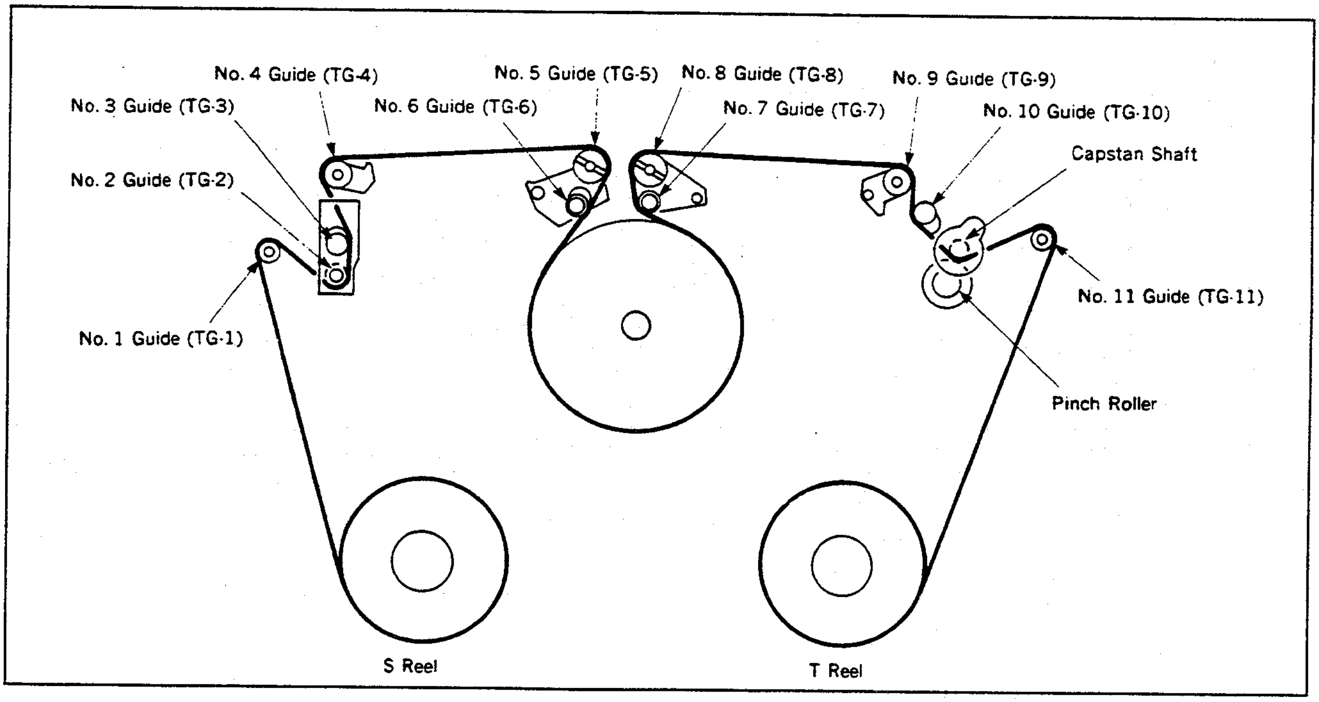

No. 4 Guide (TG-4)
No. 5 Guide (TG-5)
No. 8 Guide (TG-8)
No. 9 Guide (TG-9)
No. 3 Guide (TG-3)
No. 6 Guide (TG-6)
No. 7 Guide (TG-7)
No. 10 Guide (TG-10)
Capstan Shaft
No. 2 Guide (TG-2)
No. 11 Guide (TG-11)
No. 1 Guide (TG-1)
Pinch Roller
S Reel
T Reel

Fig. 51 Tape Guides Location

4-2 TRACKING ADJUSTMENT (Fig. 52)

1) Play back the tracking alignment tape.
2) Loosen the No. 5 guide (TG-5) lock screw ❶ and turn the No. 5 guide to flatten the waveform at the inlet.
3) Tighten the No. 5 guide (TG-5) lock screw ❶ to lock the No. 5 guide.
4) Loosen the No. 8 guide (TG-8) lock screw ❷ and turn the No. 8 guide to flatten the waveform at the outlet.
5) Tighten the No. 8 guide (TG-8) lock screw ❷ to lock the No. 8 guide. When this is done, make sure that the waveform does not change at the outlet.

Note : Be careful not to loosen the lock screw too much because the guide is easily moved.

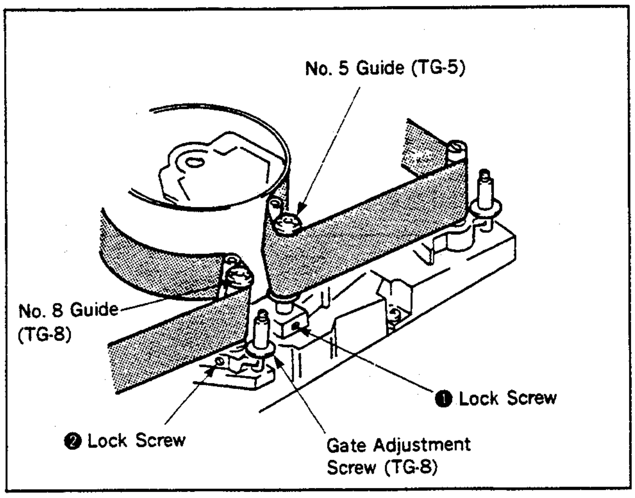


Fig. 52

4-3 NO. 4 GUIDE (TG-4) ADJUSTMENT

When an entire guide base is replaced, its height has been preste.

TG-4 Guide Height Presetting

1) With the top surface of the TG-4 guide leveled, rotate an upper flange by one turn. This is a preset height.

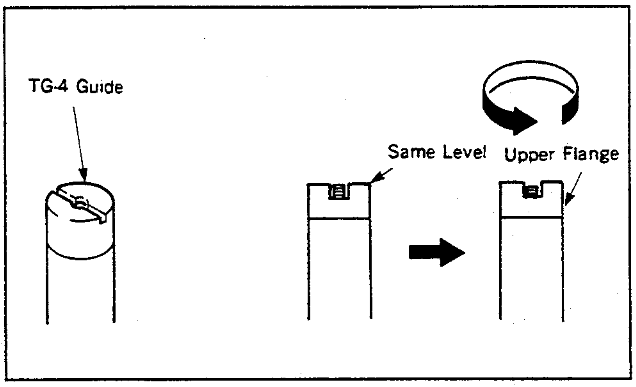


Fig. 53

No. 4 Guide (TG-4) Adjustment

1) Play back the tracking alignment tape.
2) In the FWD mode, check that the tape runs along a TG-4 lower flange. When there is a clearance, turn TG-4 counter-clockwise to put the tape along the TG-4 lower flange. turning angle must be within 180°.
   When this is done, check that a tracking waveform (Fig. 54) is not changed.
   When a tracking waveform inlet is downward as shown in Fig. 55, make tracking adjustment at the inlet side by raising a height of TG-4.

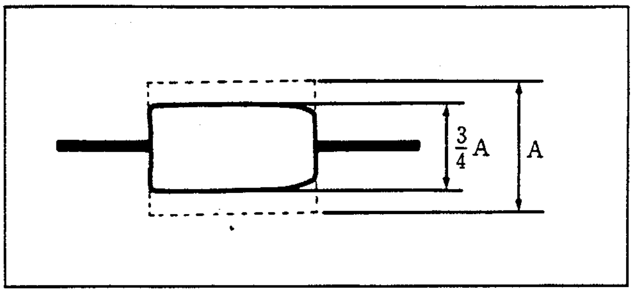


Fig. 54

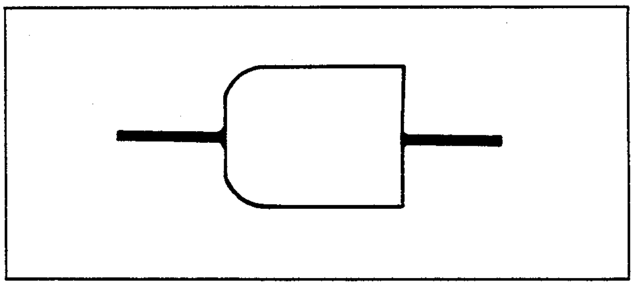


Fig. 55

Tape Path Adjustment for "Guide Rail Base 1 with TG4 Gate Adjustment" (Fig. 56)

After adjusting an inlet, when the TG-4 lower flange is curled in the REV mode, turn the TG-4 gate adjusting screw at pitches of 45° to the left to remove a curl. (A lock screw is attached to the TG-4 gate adjusting screw. First, loosen the lock screw a little, and then, turn the gate adjusting screw. After adjustment, tighten the lock screw.)

If the TG-4 gate adjusting screw is turned to the left too much, the TG-3 upper flange (arrow-indicated part in the figure above) is greatly curled. If it happens, turn the screw to the right.

Tape path Adjustment for "Guide Rail Base 2 with TG8 Gate Adjustment"

You do not have to adjust theTG-8 gate adjustment screw.

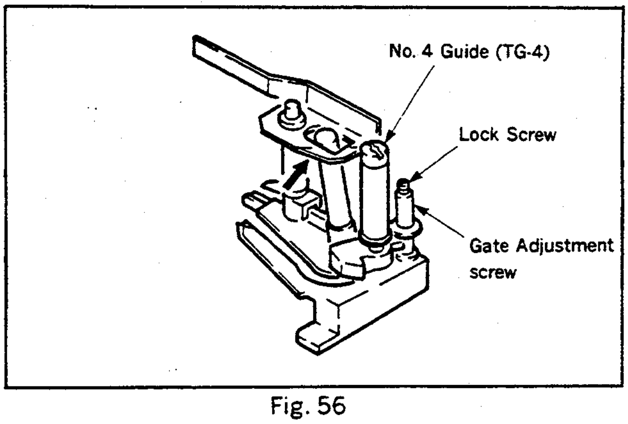


Fig. 56

4-4 NO. 11 GUIDE (TG-11) ADJUSTMENT

1) In the PLAY BACK mode, check that it has no deflection between the capstan and No. 11 guide (TG-11).
   (Criterion: 0.5mm or less)
   when the tape is deflected, turn the No. 11 guide (TG-11) to remove its deflection. (Fig. 57)
2) Select the REV mode and check the RF waveform at the outlet side. (Fig. 58)
3) If the waveform is defective, turn the TG-11 nut counterclockwise by 90° and recheck 2), 3) and 4).
4) Apply screw lock to the No. 11 guide (TG-11).

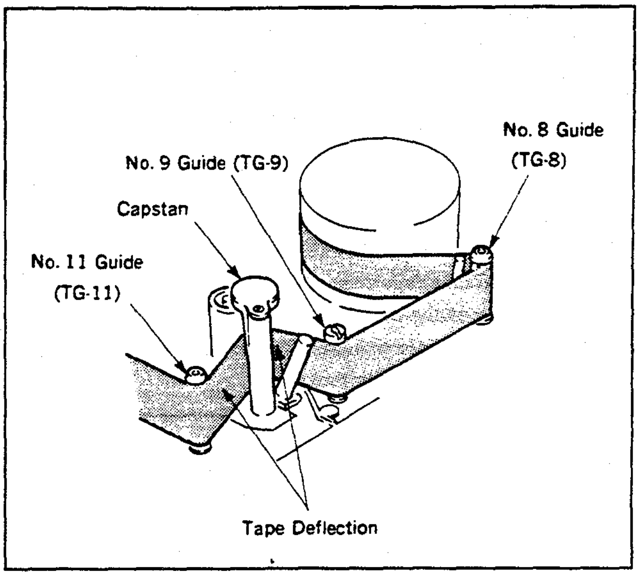

No. 8 Guide
(TG-8)
No. 9 Guide (TG-9)
Capstan
No. 11 Guide
(TG-11)
Tape Deflection

Fig. 57

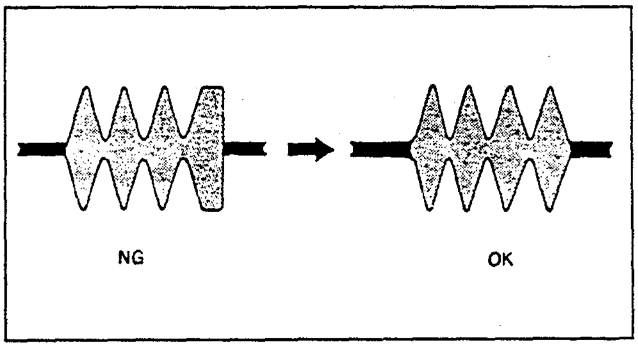


Fig. 58

4-5 CHECK AFTER ADJUSTMENT

1. Tracking Check

1) Play back the tracking alignment tape. In the PATH mode, shift a track. (Fig. 59)
2) At this time, check that a minimum amplitude value (E_{MIN}) is 67% or more of a maximum amplitude value (E_{MAX}). (Fig. 60)
3) Make sure that the waveform does not fluctuate greatly. (Fig. 61)

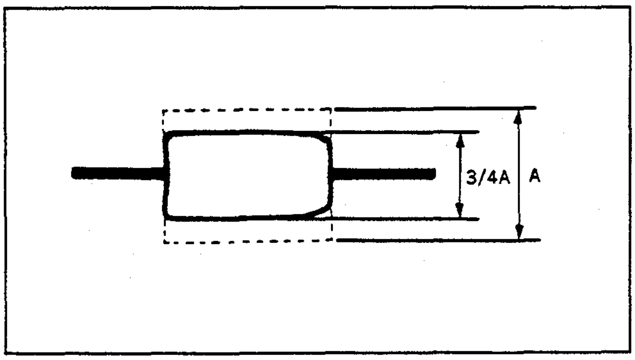


Fig. 59

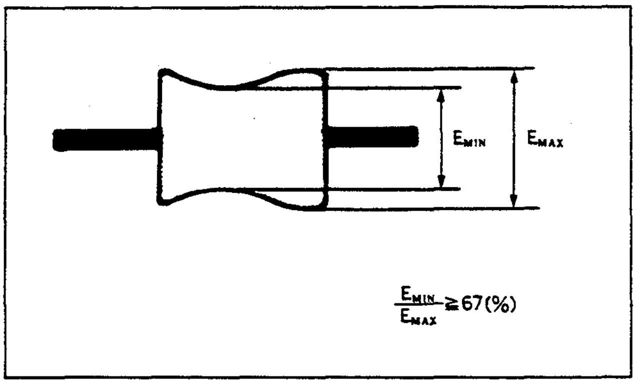


Fig. 60

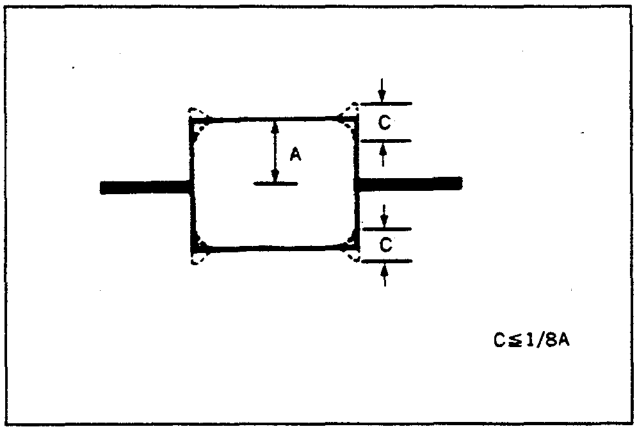


Fig. 61

2. CUE, REV Check

1) Play back the tracking alignment tape and select the REV mode. At this time, waveform peak pitches must be unform. (Fig. 62 ⓐ) When they not uniform, make tracking adjustment in 4-2 and No. 11 guide (TG-11) adjustment in 4-4.
2) Select the CUE mode. At this time waveform peak pitches must be uniform. (Fig. 62 ⓑ) When not uniform, make tracking adjustment in 4-2.

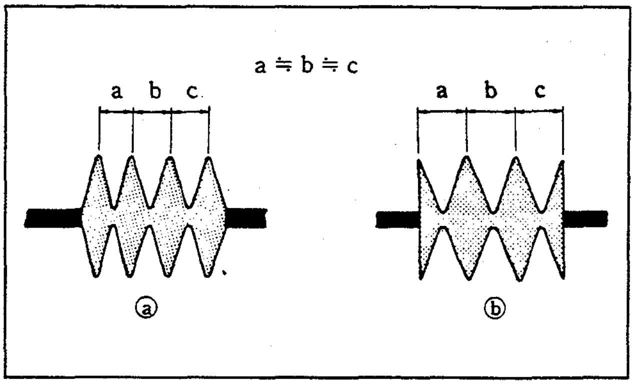


Fig. 62

3. Rise Check

1) Play back the tracking alignment tape.
2) In the PLAY BACK mode, check that the RF waveform rises horizontally within one second. At this time, check also that the tape is not deflected around the pinch roller. (Fig. 63)
3) Play back the tape after CUE/REV and FF/REW operation and check that the RF waveform rises horizontally within one second. At thistime, check also that the tape is not deflected around the pinch roller.
4) Repeat the checks in 2) and 3).

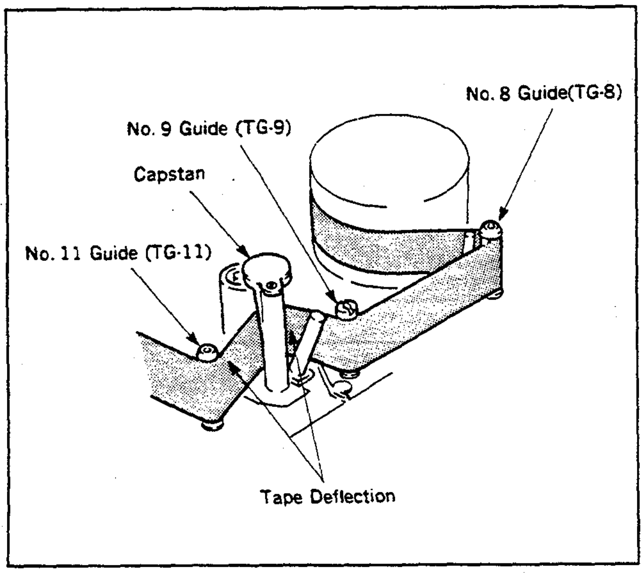

No. 8 Guide(TG-8)
No. 9 Guide (TG-9)
Capstan
No. 11 Guide (TG-11)
Tape Deflection

Fig. 63

4. Tape Running Check

In the CUE and REV modes, check that the TG-2 upper and lower flanges, TG-4 lower flange, TG-5 upper flange, TG-8 upper flange and TG-11 upper and lower flanges are not culed greatly. (Fig. 63)

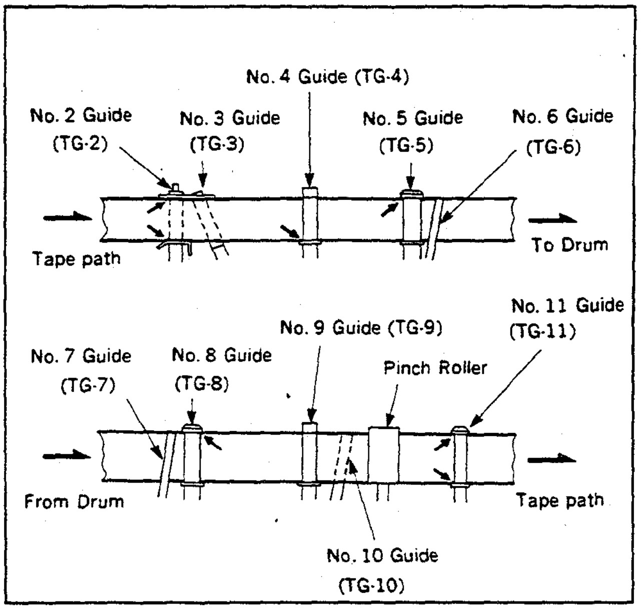

No. 4 Guide (TG-4)
No. 2 Guide (TG-2)
No. 3 Guide (TG-3)
No. 5 Guide (TG-5)
No. 6 Guide (TG-6)
Tape path
To Drum
No. 11 Guide (TG-11)
No. 9 Guide (TG-9)
No. 7 Guide (TG-7)
No. 8 Guide (TG-8)
Pinch Roller
From Drum
Tape path
No. 10 Guide (TG-10)

Fig. 64

8mm Video MECHANICAL ADJUSTMENT MANUAL II

FL MECHANISM (Q MECHANISM) Video 8

SUPPLEMENT-1

File this supplement with the service manual.

The adjustment values in the following sections have been changed.
We inform you of these changed values as conditions no longer meet.

Page 39. 3-25 REEL TABLE HEIGHT CHECK.
Page 39. 3-26 FWD / RVS TORQUE CHECK.
Page 40. 3-27 TENSION REGULATOR POSITION ADJUSTMENT.
Page 41. 3-28 FWD BACK TENSION ADJUSTMENT.

8 VIDEO RECORDER
SONY®

(Page 39.)

3-25 REEL TABLE HEIGHT CHECK (Fig. 46)

1. Removal

1) Referring to 1-1, remove the cassette compartment holder assembly.
2) Referring to 3-1, remove the LED base.

2. Check

1) Using slide calipers, etc., check that distances from the LS chassis to the S reel table reel resting surface ❷ and T reel table reel resting surface ❸ are ~~3.2±0.5mm~~ respectively.

3. Mounting

1) Referring to 3-1, mount the LED base.
2) Referring to 1-1, mount the cassette compartment holder assembly.

changed values

A: $3.2^{+0.2}_{-0.15}$mm
B: 3.2±0.15mm

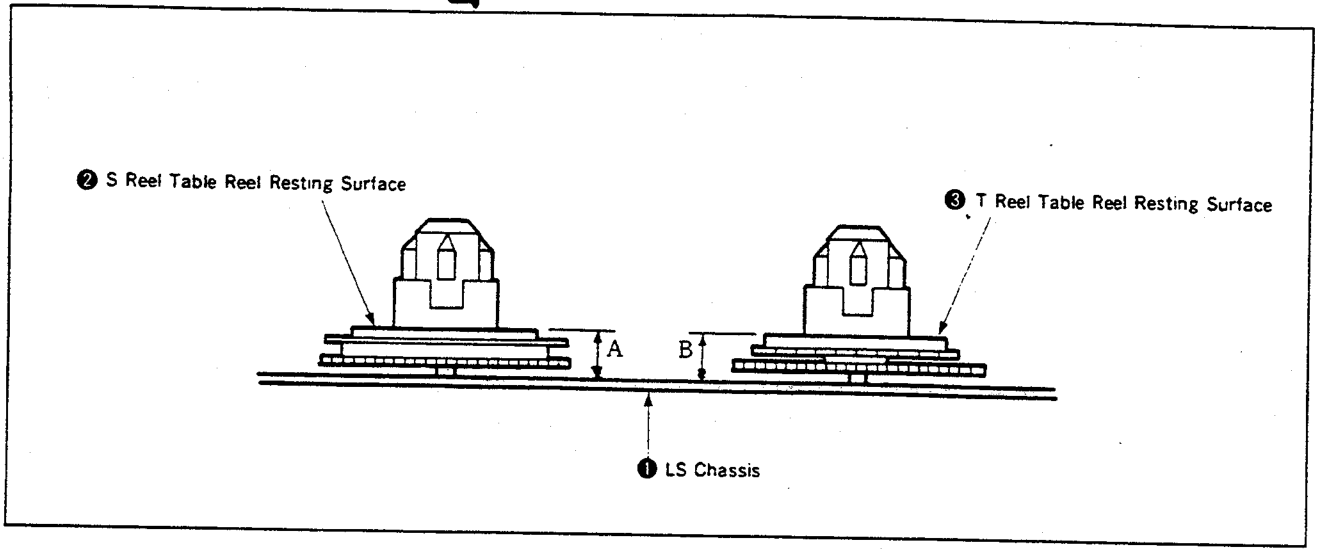

❷ S Reel Table Reel Resting Surface
❸ T Reel Table Reel Resting Surface
A
B
❶ LS Chassis

Fig. 46

3-26 FWD/RVS TORQUE CHECK

1) Set the FWD/RVS take-up torque cassette (Ref. No. J-10).
2) In the FWD mode, check that a T reel torque value is ~~6g·cm — 16g·cm.~~ ☛ **changed value** 5 – 15g·cm.
3) Turn on the REC/REVIEW button and check that an S reel torque value is 25g·cm – 45g·cm.
4) When the values above are not met, replace the respective reel tables.

(Page 40.)

3-27 TENSION REGULATOR POSITION ADJUSTMENT

1. Removal

1) Referring to 1-1, remove the cassette compartment holder.

2. Adjustment

1) Set a cassette tape, select the REC mode and run the tape. (Refer to 1-3)
2) With the tape running, check that the distance between TG-1 and TG-2 is ~~9.58±0.2mm.~~ (Fig. 47)
3) When they are not at specified positions, remove the cassette and go through the steps 4) on.

changed value 9.35 – 10.7mm.

4) Referring to 3-1, remove the LED base.
5) Loosen the screw ❶.
6) When TG-1 is located inside (or outside) its specified position, shift the TG-1 adjustment block 2 slightly in a direction of the arrow Ⓐ (or Ⓑ) and fix with the screw ❶. (Fig. 48)
7) Referring to 3-1, mount the LED base.

Note : Use the cassette tape after feeding the tape as far as a middle point.

Note : When taking the steps 4) and 5), remove the cassette tape first.

Note : Check that TG1 is able to move in direction C during REC.

3. Mounting

1) Referring to 1-1, mount the cassette compartment holder assembly.

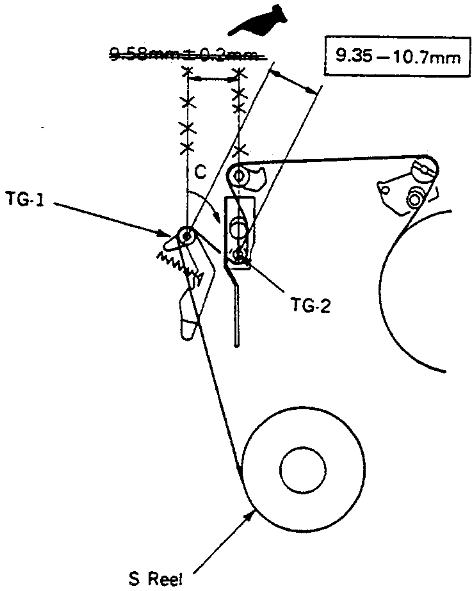


Fig. 47

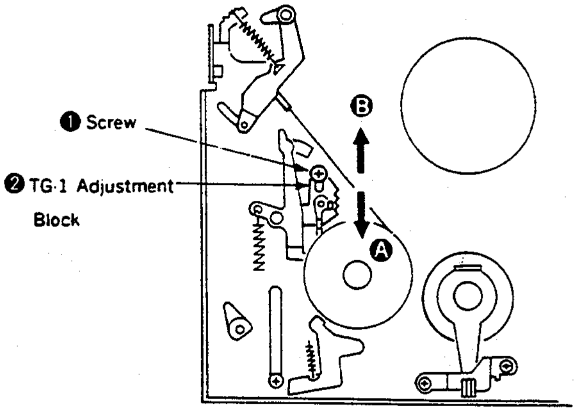


Fig. 48

(Page 41.)

3-28 FWD BACK TENSION ADJUSTMENT (Fig. 49)

1. Removal

1) Referring to 1-1, remove the cassette compartment assembly.
2) Referring to 3-7, remove the LED base.

2. Adjustment

1) Select the REC mode.
2) Set the tension measurement reel (Ref. No. J-8)❶.
3) Using the dial tension gauge (Ref. No. J-7)❷, measure a tape tension at the outlet of TG-2. When this is done, pull the tape at a rate of 14mm/sec.
4) Change the position of the tention regulator spring ❸ position as shown in Fig. A so that measure center value of the tention is ~~4.5g~6.5g.~~ **changed value** 4–6.5g.

Note : When this is done, see to it that the gear ❹ is not engaged with the S reel table.

3. Mounting

1) Referring to 1-1, mount the cassette compartment holder assembly.
2) Referring to 3-1, mount the LED base.

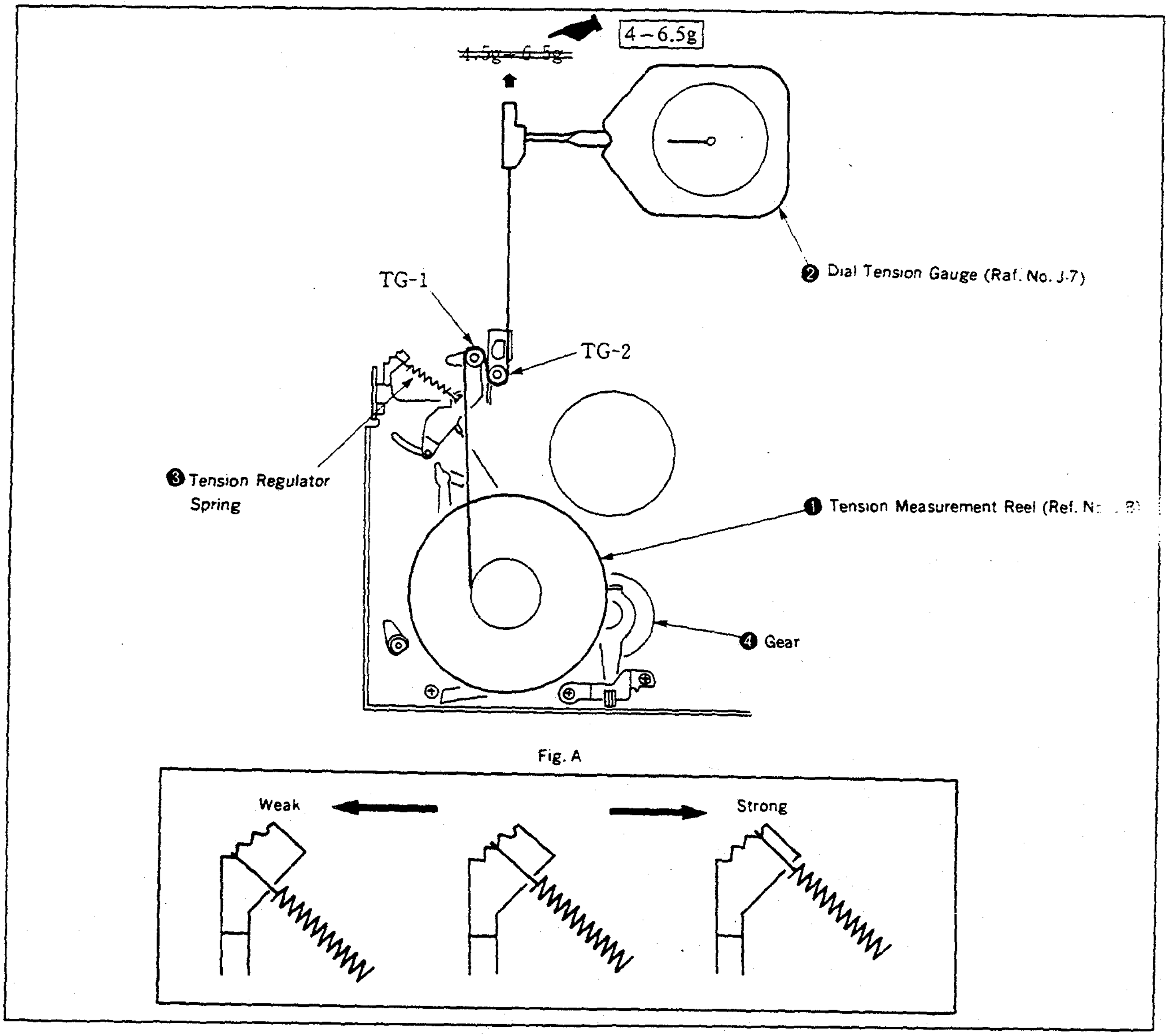

4~6.5g
~~4.5g~6.5g~~
❷ Dial Tension Gauge (Raf. No. J-7)
TG-1
TG-2
❸ Tension Regulator Spring
❶ Tension Measurement Reel (Ref. N
❹ Gear
Weak
Strong

Fig. A

Fig. 49

9-972-705-83

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92E0694-1
Printed in Japan
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8mm Video MECHANICAL ADJUSTMENT MANUAL II

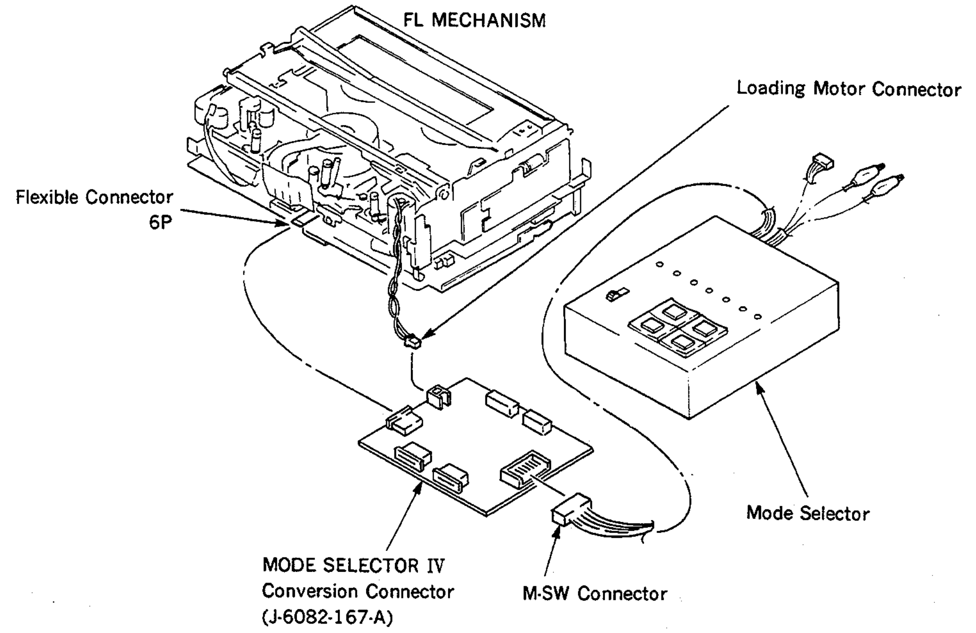
Video 8

FL MECHANISM (Q MECHANISM)

SUPPLIMENT-2

〈Connection of Mode Selector Ⅳ Conversion Connector〉

When using the mode selector Ⅳ conversion connector (J-6082-167-A) in the FL mechanism, it is connected as shown below.


FL MECHANISM
Loading Motor Connector
Flexible Connector
6P
Mode Selector
MODE SELECTOR Ⅳ
Conversion Connector
(J-6082-167-A)
M-SW Connector

8 VIDEO CASSETTE MECHA DECK

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MICROFILM

9-972-705-85

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English
93E04163-1
Printed in Japan

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CCD-TR3E
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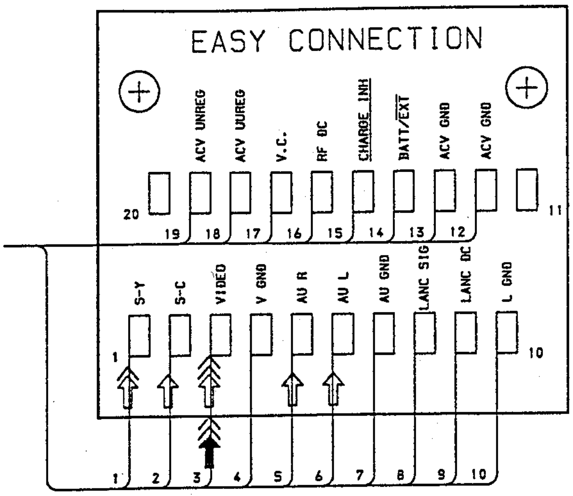
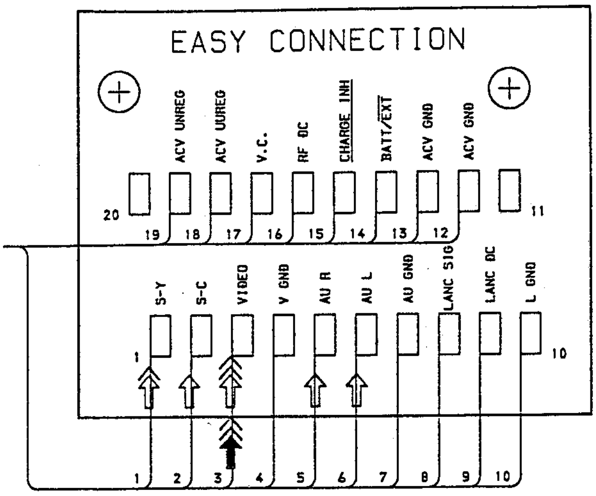
SERVICE MANUAL

AEP Model
UK Model
E Model

CORRECTION-1

Correct your service manual as shown below.

☛ : **Indicates corrected portion.**

<table>
<tr><th>page</th><th>INCORRECTION</th><th>CORRECTION</th></tr>
<tr><td>149</td><td>
EASY CONNECTION
ACV UNREG
ACV UUREG
V.C.
RF DC
CHARGE INH
BATT/EXT
ACV GND
ACV GND
20
19
18
17
16
15
14
13
12
11
S-Y
S-C
VIDEO
V GND
AU R
AU L
AU GND
LANC SIG
LANC DC
L GND
1
10
1
2
3
4
5
6
7
8
9
10
Upper row and lower row of the terminal pins are horizontally shifted.</td><td>
EASY CONNECTION
ACV UNREG
ACV UUREG
V.C.
RF DC
CHARGE INH
BATT/EXT
ACV GND
ACV GND
20
19
18
17
16
15
14
13
12
11
S-Y
S-C
VIDEO
V GND
AU R
AU L
AU GND
LANC SIG
LANC DC
L GND
1
10
1
2
3
4
5
6
7
8
9
10

</td></tr>
<tr><td>197</td><td>J-11 | Extension cable (46P, 0.8 mm) | J-6082-272-A
J-20 | Extension cable (36P, 0.8mm) | J-6082-273-A</td><td>J-11 | Extension cable (46P, 0.8 mm) | J-6082-273-A ☛
J-20 | Extension cable (36P, 0.8mm) | J-6082-272-A ☛</td></tr>
</table>

English
94J1670-1
Printed in Japan
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Published by Personal A&V Products Div.
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9-973-522-91